

THE AUTOMOBILE



Night Scene During Brighton Beach 24-hour Race—Coney Island Is to Be Seen in the Distance.

AMERICANS ONE-TWO IN BRIGHTON BEACH "24"

TWO American Cars, both Loziers, one a "six," driven by Mulford and Cobe, the other a four-cylinder, piloted by Michener and Lynch, finished respectively first and second in the 24-hour race promoted by the Motor Racing Association at the Brighton Beach mile track, New York City, last Friday and Saturday. Both succeeded in surpassing the circular track record mileage of 1,079, made by Bernin and La Croix at the Morris Park 1.39 miles oval last year. The winner was 28 miles ahead of it and the second car beat it by 13 miles, with an average per hour respectively of 44.9 and 44.7 miles per hour.

A Fiat, a make that evolved victorious in the last 24-hour race held in the metropolitan district, was forced to accept the place of runner-up to the American pair. A Renault, the other European make represented, and, incidentally, the record holder, also went down in defeat, but through an accident in the second hour of the race, which put it out of the running altogether.

A Stearns, a Simplex and an Allen-Kingston followed in order in fairly close pursuit. Of the 11 starters there were practically 10 survivors, although one of these did not appear on the track during the last two hours of the contest.

The double victory of the Lozier was a popular one, not only by reason of its being an impressive American triumph, but from the fact that it came to the winning entrant, Harry A. Lozier, as a well-deserved reward for his persevering pluck in pursuing the racing game, which, save for a 24-hour victory at Philadelphia and an invariably creditable position among the leaders, had not been recompensed by any success.

That the meet was "outlaw" in that it was run without asking the sanction of the racing board of the national organization, has been too widely heralded to be unknown to any follower of the news of the racing game. Incidentally, there was a funny attempt on the part of Louis Strang to straddle or secure for himself possible immunity from punishment by making formal application, accompanied by a check, for a sanction from a member of the racing board. Needless to say the sanction was refused. It may also be worth while to note the report in circulation that the reason for the M. R. A. decision not to apply for a sanction was that a member of that body had been told by two A. A. A. racing board members that no sanction would be granted. This report was met by a posi-



The Winning Lozier.



Continentials Were Worn by the Winning Car.



Acme, Driven by Strang, Who Was Disappointing.



Michelin Tires Were Generously Used.



A Night View of the Garford Camp.

tive statement that the M. R. A. emissary either misunderstood or misquoted the reply given his question. This, however, was but one of the many rumors afloat to account for the action of the M. R. A., most of which in all probability had nothing whatever to do with the stand the men interested decided to take.

The outcome of the meet showed that the public at large interests itself but little with the sanction or anti-sanction controversy so long as it sees the prospect of good racing at the moment. There was a big, a very big, in fact, a record crowd in attendance on both Friday and Saturday nights. The grandstand is credited with holding 3,500 and the field stand 2,800 people. Every seat in both was filled and there were probably several thousand more on the lawns in front. The gross receipts for the two afternoons and evenings are rumored to have approached \$25,000 and the expenses to have been in the neighborhood of \$14,000. With the horse-racing under a cloud and the season of the home-coming of the summer sojourners and tourists at hand, the racing and the excuse for a rendezvous were irresistible. The outpouring of automobiles was remarkable. Lawns and sheds were filled with them on both nights.

The men of the association are not inexperienced in the racing game, and they spared neither pains nor expense to insure a well-conducted meet. They were able to call to their assistance competent officials, with the result that the races were run off with satisfaction to the spectators and without any obtrusive complaint by the participants.

The track owners had prohibited oil being used. "Glutrin," a by-product of wood-pulp, was employed with highly satisfactory results in retarding the dust. Stereopticon bulletins, adding machines for the scorers and a strident electric horn for starting and warning were among the novelties introduced. The officials and newspaper men were well cared for over night, a dormitory and restaurant having been established in the clubhouse to offset the closing of the nearby Brighton Beach Hotel.

There were few men of prominence in the racing world on the official stand. Robert Lee Morrell was a referee, S. M. Butler and A. L. McMurtry were among the timers, Tom Moore essayed to masquerade as a "wag" pro tem. with the starter's flag, and Charley Earl was an announcer.

It had been heralded during Friday afternoon with much flourish of trumpets that President Roosevelt had consented to start the race by 'phone. Eight o'clock, the hour set for the start, approached and but two or three cars were at the tape. It came and no start. Perhaps Mr. Roosevelt had not finished his coffee, was the surmise of the expectant crowd. Not so. The Allen-Kingston camp had been given grace to repair a bent axle incurred in an afternoon sprint race. Half an hour later, however, the 11 contestants were lined up, six in the front and five in the back row. At 8:30 o'clock sharp Tom Moore pressed a button at the end of a long wire and the siren shrieked a shrill signal for the start. Whether President Roosevelt was at the other end of the judges' stand telephone wire the announcer failed to make known. With the press agent's proud paragraph in the late editions of the evening papers the incident perhaps may have been closed. There was an exciting scramble around the first turn and a mad scamper down the backstretch, from which Laurent evolved with the Stearns as leader of the first mile in 1:20. Mulford took the lead the next lap. The pace was fast and the changes were frequent. George Robertson, with whom a reckless gait is characteristic, was prominent in the sprinting and at 20 miles was in the lead with the Simplex in 25:26, and still in front at 25 miles in 31:40. Then Mulford took up the running with the Lozier "six," and led all the way past 50 miles—thirty in 37:51, thirty-five in 44:03, forty in 50:19, forty-five in 56:15, and 50 in 1:02:15, pursued in order by Michener in the Lozier "Four," and Parker in the Fiat.

Loziers Lead During First Hour.

Lozier No. 1 and No. 2 led in this order at the end of the first hour, with 48 miles to their credit. The Allen-Kingston, Renault, Stearns, and Fiat were tied two miles behind. The running the

first hour was four miles behind the De Dietrich's record, of 52 miles, made in the last Morris Park race.

The exciting all around racing, with gleaming headlights flashing around the turns, scurrying in a mask of electric flames down the homestretch, swinging recklessly around the bend, and speeding with red tail-lights marking their flight of the backstretch, got and kept the great crowd agoing with constant cheers for sharp brushes and encouraging cries to their favorites. This night racing is, indeed, an inspiring and weird spectacle, well calculated to arouse a thrill and a hurrah in even a cold-blooded cynical race follower. It was a splendid struggle this fight for the lead. It grew even hotter in the second hour. Lozier No. 1, Simplex and Allen-Kingston were having a neck-and-neck three-cornered fight. They finished the second hour even with 101 miles each and tied the record made by the Simplex at Morris Park. The excitement was continuous and the expectation of something going wrong with the contestants at any moment kept the spectators constantly on the *qui vive*.

Renault Meets with Disaster.

Before the second hour was little more than half way through the contingent of the crowd whose interest lay mainly in the possibilities of smashed cars and broken bones, got their money's worth in the first and only accident of the race. It put the Renault out of the race and its crew in the hospital. The S. P. O., a 16-horsepower taxicab chassis, with racing body, and another car, blocked the way of the Renault on the backstretch through being too far out from the pole. Paul Sartori, who was at the wheel of the Renault and has a reputation for recklessness, tried to cut through on the inside, struck the taxicab, and deflected his own car through the fence. His car was upset and completely wrecked. Sartori's arm was broken in two places, and his mechanic, Rene Gaurand, sustained severe scalp wounds. They were cared for in the hospital tent, later taken in an ambulance to the Coney Island emergency hospital, and the next day were removed to a New York hospital. It took nearly four hours to repair the S. P. O., which did not again take up the running until the sixth hour.

In the third hour the triple tie was broken by the Simplex and Allen-Kingston cutting a way from Michener and having a battle royal of their own for the leadership. It was a hard fought scrap, in which Robertson finally prevailed and secured a three-mile lead over Rippigill. Michener chased the pair a mile in the rear. The Simplex was now tied with Lozier's 193 mile record for four hours at Morris Park.

In the fifth hour George Robertson set a whirlwind pace, covering 52 hours, scoring a new record, 245 miles against 237, the former figures. From this point on the leaders kept well



Simplex, Robertson Driving, which at One Time Figured Dangerously as a Probable Winner.

ahead of the Morris Park figures. The Allen-Kingston had faltered and let Michener by with the Lozier, which, however, was six miles behind the Simplex. Robertson kept at it hammer and tongs the sixth hour. Michener dropped back into the ruck and the Allen-Kingston once more became the runner up. Mulford now began his fine work, which finally made the Lozier "four" a mere running mate for second place honors, and at the end of the hour was installed in third place.

Robertson Spoiled Simplex Chances.

In gaining and maintaining the lead Robertson had driven a reckless race utterly unmindful of any possibility of fuel exhaustion. His punishment came through the water giving out. A dry radiator and two cracked cylinders practically destroyed all chances the speedy Simplex might otherwise have had. The end of his long sprint came at 2.35 A. M., when the seventh hour had hardly begun. It took nearly three hours to put in new cylinders, and when Robertson appeared on the track again in the ninth hour he was far back in the ruck in eighth position.

All this time the triple winner of 1908, Louis Strang, had been lost so far back in the ruck that he was forgotten by the spectators, who had interest only for the heroes of the present. Strang had taken his seat in the Acme with practically not even a trial



In the Backstretch Occasionally the Cars Bunched and Made It Most Interesting.



President C. F. Wyckoff.



"Outlaws" Morrell, Hollander, and Butler.



Tom Moore and Announcer Earl.

of the car. It was not until the fourth hour that the car was gotten into fair running shape. Barring the S. P. O. and the Garford the Acme was then at the tail end of the procession. It was in no shape, however, to show better than a 40-mile an hour average to the end of the race.

With the retirement of the Simplex with its cracked cylinders, the Allen-Kingston became the most conspicuous performer. For three hours it held a lead of from 6 to 12 miles over the Lozier "Six," scoring 50 miles in the eighth hour. Toward the close of the ninth hour, however, the leader met its Waterloo just as the Simplex had before it. A broken radiator, said to have been caused by a flying stone, put it out of the running long enough to ruin its chances. It took an hour to put in a new radiator, and when Rippigill again entered the race the Allen-Kingston found itself in fifth position.

Mulford Takes Lead and Holds It.

While the A.-K. was in camp Mulford grabbed the lead, which the Lozier "Six" held tenaciously to the end of the race. The Fiat flashed into second place and Michener held to third like a bull dog. The Fiat held stubbornly to second place from the tenth to the end of the fifteenth hour, when it lost it to Michener and never regained it thereafter, the trio running in the order of their finish to the end.

There was a halt called on the race at half past one o'clock on Saturday afternoon that the track might be watered, and two or three time killing events be run so that there might be a late finish to catch a Saturday-night crowd, the advertisements having promised that the end would not come until late in the evening.

At 3 o'clock the race was resumed. The mishaps of the Simplex and the Allen-Kingston had left them in fifth and sixth positions, respectively. Ralph de Palma had taken the wheel of the Allen-Kingston and George Robertson still pluckily stuck to the seat of the Simplex. The duel of these rival drivers and cars was the feature of the last hours of the race. Robertson, however, finally won out in the duel, made up his 50 miles, and won out by a couple of laps. In the eighteenth hour he scored 51,

and in the nineteenth 54 miles, a total of 105 miles in two hours, which comes pretty close to being a track record.

The Stearns drivers, Laurent and Marquise, for the first time in the race gave the Stearns its full head and stalled off the Simplex and Allen-Kingston from overtaking them.

Those Stops for Unlighted Tail-lamps.

During Saturday evening Mulford was stopped frequently by the officials on account of the tail-lamps of Lozier No. 4 being out. It cost the car a lot of lost time. During Friday evening, by the way, the Fiat was stopped several times for the same reason. In fact, the bunch at one time made six circuits of the track while the Fiat was engaged in argument and relighting in front of the stand. Some official called to the timers to score the Fiat with the bunch. The next day W. E. Scarritt, then acting referee, heard of this and ordered six miles to be deducted from the Fiat's score.

The Thomas "Forty," a six-cylinder stock car, which had been put in practically for a demonstration, made good with a steadily maintained average of about 40 miles an hour. Its troubles were few. The Garford had bad luck and was held up in camp at one time for 6½ hours at a single stretch.

The Loziers received an ovation at the finish, the crowd rushing on the track to greet the winner to the great danger of being run into by the cars, which Tom Moore was frantically striving to bring to a halt by waving a red lantern.

24-Hour Racers Mechanically Considered.

The result was a clean-cut victory for the Lozier in its securing both first and second places. Moreover, the winner was a six-cylinder car, the first ever entered in a race of this length. It was rated at 50-horsepower, with cylinders of 4 5-8 inch bore by 5 1-2 inches stroke. Mulford's four-cylinder car has cylinders 5 1-4 inches "square." Both motors follow the usual Lozier design; cylinders cast in pairs and covered with pearl gray enamel; valves on opposite sides; crankshaft forged from chrome-nickel steel, running on ball bearings. Both have multiple disc



Re-start on Saturday After Repairing Track.



Marquise and the Stearns Performer.

clutches and four-speed selective change-gears with direct drive on third speed. Drive to the rear axle is through a shaft with a single universal joint, housed in a tube which acts as a torsion rod. All wheels are 36 inch with 4-inch front and 4 1-2-inch rear tires, of Continental make. The wheelbase of the six-cylinder car is 131 inches and of the four-cylinder 124 inches. One detail which showed the careful preparation of the cars for the race was the arrangement of the taillights, which were enclosed in the rear part of the body work, with only the red bull's-eyes showing. Bosch was the magneto used.

The Fiat driven by Capra and Parker took third place, showing good speed and losing little time in the paddock. Its motor develops 60 horsepower, with cylinders 140 by 135 millimeters (5.52 by 5.32 inches) and, of course, cast in pairs with opposite valves. It was the only car in the race using low-tension ignition, the current being generated by a Bosch magneto. The change-gear gives four speeds, operated selectively, and drive is through side chains.

Laurent's Stearns No. 4 was another consistent performer and was always well up in the list. Its four-cylinder motor has cylinders cast in pairs, 5 3-8 by 5 7-8 inches, with both inlet and exhaust valves on the left side actuated from one camshaft. One notable feature is the double-jet carbureter, which accounts for the otherwise rather ambiguous rating of 30-60 horsepower. Stearns also departs from established standards in the use of an expanding band clutch. Gear change is by the usual four-speed selective system and drive through side chains. The wheels are shod with 36x4 and 36x4 1-2 inch Continental tires.

The Simplex was admittedly the fastest car on the course, and was also the highest powered, its four cylinders being 5 3-4 inches "square." They are cast in pairs with opposite valves, and drive is through a four-speed selective gear and double chains. The wheelbase is 126 inches.

Allen-Kingston was of lower power than any of the cars which finished ahead of it, but managed to hold its own fairly well. The dimensions of its cylinders are 5 by 5 1-2 inches, and the design follows accepted standards. The clutch, however, is rather unusual, consisting of only five discs, alternate steel and bronze. Drive is by shaft to the live, floating rear axle.

Strang's Acme was a stripped six-cylinder roadster, with cylinders cast separately; ignition by Eisemann magneto and batteries, with two sets of plugs. Another six-cylinder contestant was Montague Roberts' Thomas. The S. P. O. is a newcomer to the

American trade, and there was much uncertainty as to its origin. It is made by the French Société de Petit Outillage, and is only of 16 horsepower. The Garford 40, which suffered from various troubles, and Sartori's unlucky Renault are both stock cars of familiar designs.

Another Race Will Be Held.

Following the big race came a challenge and an acceptance and with them the chance of a sweepstake being embodied in the next 24-hour contest, which is announced for October 2-3. Paul La Croix was naturally a bit crestfallen at the Renault being put out of the race by an accident so early as to cut off the car's chances of repeating or bettering the record performance of this make at Morris Park. He accordingly issued a challenge to any competitor in a future race to put up \$1,000 against his entry. Charles Singer, entrant of the Simplex, which held the lead for several hours in record time early in the contest, was quick to respond with an acceptance and suggestion that the third and fourth cars be also invited to compete in the sweepstakes.

Short Events Were Mediocre.

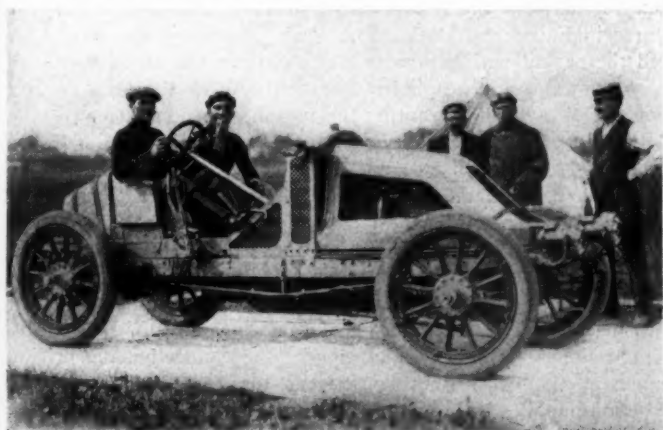
As usual a program of sprints was run the afternoon prior to the start of the big race, but they did not pan out over well. There were few entries and the waits between were tediously prolonged.

HOW THE BATTLE FOR THE LEAD WAS WAGED.

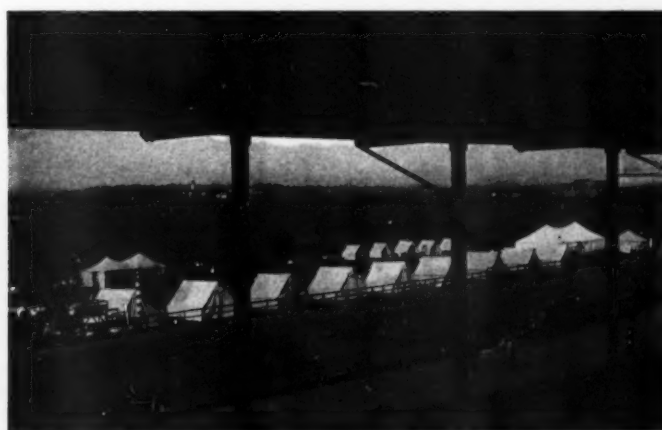
Hour	First	Second	Third	Former Record
1	Lozier No. 1... 48m	Lozier No. 2... 48m	Allen-K'gston. 46m Renault..... 46m Stearns..... 46m Fiat..... 46m	52m
2	Lozier No. 1... 101m	Allen-K'gston. 101m	Simplex..... 101m	101m
3	Simplex..... 146m	Allen-K'gston. 143m	Lozier No. 1... 142m	146m
4	Simplex..... 193m	Allen-K'gston. 192m	Lozier No. 1... 191m	193m
5	Simplex..... 245m	Lozier No. 1... 239m	Allen-K'gston. 235m	237m
6	Simplex..... 294m	Allen-K'gston. 284m	Lozier No. 2... 279m	286m
7	Allen-K'gston. 332m	Lozier No. 2... 320m	Stearns..... 313m	316m
8	Allen-K'gston. 382m	Lozier No. 2... 371m	Lozier No. 1... 359m	362m
9	Allen-K'gston. 423m	Lozier No. 2... 417m	Fiat..... 411m	408m
10	Lozier No. 2... 465m	Fiat..... 462m	Lozier No. 1... 458m	457m
11	Lozier No. 2... 515m	Fiat..... 506m	Lozier No. 1... 504m	504m
12	Lozier No. 2... 565m	Fiat..... 556m	Lozier No. 1... 552m	553m
13	Lozier No. 2... 616m	Fiat..... 605m	Lozier No. 1... 601m	600m
14	Lozier No. 2... 664m	Fiat..... 650m	Lozier No. 1... 646m	650m
15	Lozier No. 2... 706m	Fiat..... 693m	Lozier No. 1... 691m	699m
16	Lozier No. 2... 755m	Lozier No. 1... 740m	Fiat..... 724m	746m
17	Lozier No. 2... 803m	Lozier No. 1... 781m	Fiat..... 771m	787m
18	Lozier No. 2... 849m	Lozier No. 1... 825m	Fiat..... 815m	826m
19	Lozier No. 2... 883m	Lozier No. 1... 870m	Fiat..... 860m	871m
20	Lozier No. 2... 928m	Lozier No. 1... 914m	Fiat..... 903m	909m
21	Lozier No. 2... 972m	Lozier No. 1... 960m	Fiat..... 950m	951m
22	Lozier No. 2... 1016m	Lozier No. 1... 1005m	Fiat..... 993m	995m
23	Lozier No. 2... 1060m	Lozier No. 1... 1048m	Fiat..... 1039m	1032m
24	Lozier No. 2... 1107m	Lozier No. 1... 1092m	Fiat..... 1074m	1079m

SUMMARY OF THE BRIGHTON BEACH 24-HOUR RACE, SEPTEMBER 11-12, 1908.

Order of Finish	CAR	Drivers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	LOZIER	Mulford and Cobe	48	99	139	185	232	279	320	371	417	465	515	565	616	664	706	755	803	849	883	928	972	1016	1060	1107
2	LOZIER	Michener and Lynch	48	101	142	191	239	275	312	359	406	458	504	552	601	646	691	740	781	825	870	914	960	1005	1048	1092
3	FIAT	Capra and Parker	46	99	137	184	230	273	312	364	411	462	506	556	605	650	693	724	771	815	862	907	950	993	1039	1074
4	STEARNS	Laurent and Marquise	46	97	136	184	231	270	313	353	398	433	474	522	570	620	659	701	746	784	835	880	923	966	1008	1050
5	SIMPLEX	Robertson and Lescault	45	101	146	193	245	294	296	296	310	361	413	460	505	553	599	647	695	746	800	846	892	938	982	1029
6	ALLEN-KINGSTON	Rippigill and De Palma	46	101	143	192	235	284	332	380	423	430	478	523	570	619	657	699	745	789	835	865	906	932	982	1027
7	ACME	Strang and Rodgers	29	42	65	108	157	194	240	289	332	375	418	465	514	557	591	631	676	703	749	792	835	879	927	976
8	THOMAS	Roberts and Martin	40	86	122	162	203	237	278	316	356	396	437	478	518	561	605	651	691	728	768	804	840	877	918	955
9	S. P. O.	Kjeldsen and Juhasz	36	55	55	55	55	60	98	136	166	202	243	278	313	351	389	402	413	443	483	500	533	569	602	635
10	GARFORD	Vantine and Daty	33	33	41	54	83	83	83	83	83	83	83	93	138	183	220	263	303	318	318	323	344	375	387	387
11	RENAULT	Sartori and Clement	46	64																						



Paul Sartori (Renault) Who Later Went Through Fence.



A View of the Infield from the Grand Stand.

PARKWAY TO BE OPENED WITH SWEEPSTAKES

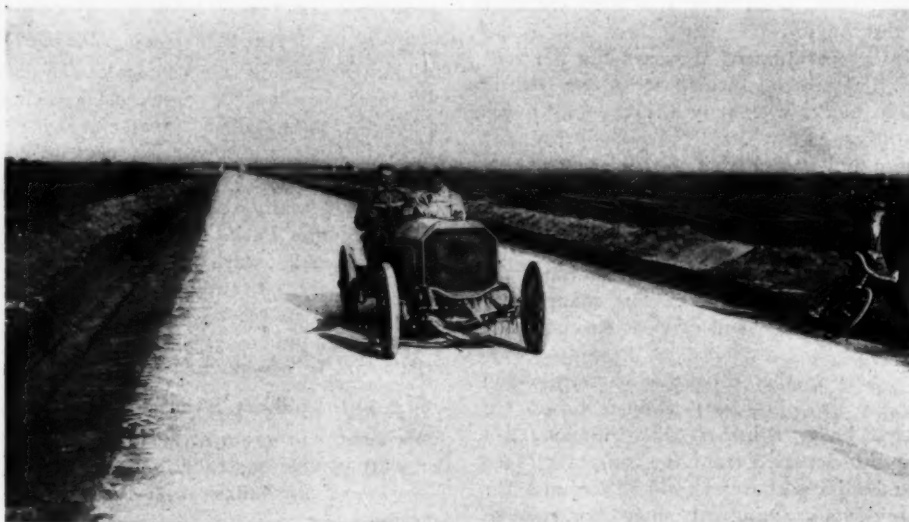
INSTEAD of the elimination trials for the Vanderbilt Cup which were planned to be held on Long Island on October 10 next, the Vanderbilt Cup Commission has decided to substitute a fitting celebration to mark the opening of the Long Island Motor Parkway. The event to be held will be known as the Long Island Motor Parkway Sweepstakes, and owing to the unusual and unequalled facilities offered by the course, the race will be marked by features hitherto impossible in connection with automobile speed events. Cars of every class, selling from \$1,000 up will be eligible to compete, and unlike any previous event of the kind, they will all be started at once. Owing to its novelty and the fact that makers are anxious to try out their 1909 models in competition with those of their competitors, it is thought that there will be fully 75 entries.

Another unusual feature of the event is to be found in the fact that the daylight start of bygone days will be abolished, the cars not being sent away from the line until 9 a. m. The 25-mile circuit laid out for the Vanderbilt cup race will be employed, the larger cars making ten laps, or a distance of 250 miles, while the smaller machines will be required to go from four to eight laps according to their selling prices. It is easy to realize the spectacular possibilities of an event in which such a large number of cars will be running round a 25-mile circuit, and there certainly should be no long waits at the grand stand, while close brushes past it will doubtless be frequent. In fact the excitement there should be continuous, and quite in contrast with former events, as up to this time it has been impossible to start a large number of cars at once.

On the date in question they will be sent away in lots, or with an interval of 30 seconds between, and as the 11-mile stretch of cement parkway offers unrivalled speed facilities, the competing drivers will be able to get out of one another's way soon after leaving the stand. The grand finish will be for the high-powered cars only, as they will go the entire distance of 250 miles, making ten laps of the circuit. Cars selling under \$2,000 will only be required to go four laps, while those listing between \$2,000 and \$3,000 will have to make eight laps; those selling above \$3,000 will have a chance to be in at the finale of the day.

Although the entrant must furnish evidence that the machine entered is of a type to be produced during 1909, or one that has been produced in quantities during the past season, the Cup Commission has offered the manufacturer more liberal conditions than have ever been granted in any stock touring car event. Touring cars, as well as all other machines, may be completely stripped and put into racing form, even including the use of special racing gear ratios, the removal of guards, mufflers and other impedimenta to a racing car being permitted. Where mufflers are carried, the only restriction concerning them is that they shall not be pointed toward the ground.

The grand stand, which is being built for the Vanderbilt cup race, to be held over the same course on October 24, will be com-



Joseph Tracy in His Locomobile, Making 95 Miles an Hour on the Parkway.

pleted in time for the Motor Parkway Sweepstakes, and the Long Island Railroad and trolley special service will be running in full force, the same as on the day of the big race two weeks later. The cup circuit is now in practically complete condition, all the bridges crossing intersecting highways being up, while the oil for the State and county roads connecting the two ends of the 11-mile

stretch of the cement parkway has now been received and will be utilized to make this part of the course dustless. An elaborate telephone system for signaling the timing and reporting the positions of the cars on the various parts of the course has been installed. Boxes and seats in the grand stand are now on sale and may be had from Jefferson De Mont Thompson, chairman of the Vanderbilt Cup Commission, at the headquarters of the American Automobile Association, 437 Fifth Avenue, New York.

Entry blanks are now out for the Motor Parkway Sweepstakes, the preliminary announcement of the various classes, for which \$5,000 in prizes are offered, being as follows:

Class No. 1: Motor Parkway Sweepstakes.—For cars selling above \$4,000. Entry fee, \$150 for each car. Cash or plate prize to the winner of \$1,000. Distance, ten laps of the circuit.

Class No. 2: Meadow Brook Sweepstakes.—For cars selling over \$3,000 to \$4,000. Entry fee, \$125 for each car. Distance, ten laps of the circuit. Cash or plate prize of \$1,000 to the winner.

Class No. 3: Garden City Sweepstakes.—For cars selling from \$2,001 to \$3,000. Entry fee, \$100 for each car. Distance, three laps of the cup circuit. Cash or plate prize of \$1,000 to the winner.

Class No. 4: Jericho Sweepstakes.—For cars from \$1,001 to \$2,000. Entry fee, \$75 for each car. Distance, six laps of the cup circuit. Cash or plate prize of \$1,000 to the winner.

Class No. 5: Nassau Sweepstakes.—For cars selling for \$1,000 or under. Entry fee, \$50 for each car. Distance, four laps of the cup course. Cash or plate prize of \$1,000 to the winner.

WHY FAIRMOUNT SANCTION WAS GRANTED.

PHILADELPHIA, Sept. 14.—The 200-mile "Founders' Week Stock Chassis Road Race" is assured. It will be pulled off Saturday, Oct. 10, between the hours of 6 and 11 A. M., over a 7.8-mile course in Fairmount Park. The Park Commissioners have coupled the permit with a number of conditions but all of them are reasonable and will be gladly complied with by the Quaker City Motor Club. Besides granting the permit for the actual race, the commission adopted a resolution that, "under the conditions of the request, automobilists who propose entering the race shall be permitted to practice daily over the route for one week prior to the race between 7 A. M. and noon every day."

A fraction over 25 circuits of the 7.8-mile course will be necessary to complete the 200 miles, but it is likely that the committee will make it an even 25 times around—195 miles.

In the argument that preceded the final granting of the permit, Commissioner James Pollock made the somewhat surprising statement that during the past year the records showed that more automobiles had entered the park than horse-drawn pleasure vehicles. "We must, therefore, give consideration to the motor car," he said.



At the Comfortable Base of Wilbraham Mountain, Start of the Springfield Club's Mile Climb.

KNOX WINS MOST HONORS IN WILBRAHAM CLIMB

SPRINGFIELD, MASS., Sept. 11.—Springfield, home of the Knox and Stevens-Duryea, famed in days gone by as the arena of the world's biggest bicycle meets and the scene of the most famous exploits awheel of its great cycle champion, George Hendee, now a leader in another branch of the motor vehicle industry, well sustained to-day the sporting reputation of the old town by the successful promotion of one of the best hill climbs and most difficult up-grade tests yet credited to New England.

In Wilbraham Hill the Automobile Club of Springfield has a proposition well worthy of attack by the most ambitious hill-climbers. It is a sheer ascent of a mile, that goes straight up the side of the mountain with grades varying from 6 to 25 per cent. They made the most of it by good management and setting forth a well conceived program that gave golden opportunities to all classes of cars were they segregated by piston area or by price.

At the lowest estimate 7,000 spectators gathered to see the climb. No less than 800 automobiles lined the road and at that scores of machines were unable to obtain parking spaces.

Charles Basle, who won record-breaking fame at Ormond and on several circular tracks and is to be a pilot in the coming Vanderbilt Cup race, carried off the time honors of the day in the 48-50 Knox "sportabout" he is to drive in the Long Island classic. Arousing the wildest enthusiasm over his skill and daring, Basle made the steep mile ascent in 1:08, a rate of but a fraction under 53 miles an hour.

There was but one driver and one car at the climb that gave any promise of equaling or beating this time, and that was the unfortunate Robinson with the Stevens-Duryea "Big Six." While taking the hill at a terrific gait in an attempt to lower Basle's record his car skidded three times across the course at the first parking ground and struck a boulder which shattered the right

rear wheel. The car turned somersaults and Robinson was thrown 50 feet to the roadside below. Fortunately he escaped with no more injury than a broken leg and painful bruises. After that Basle's time was never in danger.

The accident had a notable effect on risks taken by the other contestants, resulting in comparatively slow time made in the following events. Baldwin in his Stanley steamer made an unsuccessful attempt to lower Basle's time. Like the other drivers, especially of the lighter cars, however, he recognized the danger of the abrupt turns and grades. In his trial he made the climb without full steam, his momentum being great enough to carry him from the foot well up the hill. Then he opened his throttle again for a final dash for the tape. His time was 1:11 2-5, which placed him in the fastest class.

The fastest time of all motor vehicles was made by Stanley Kellogg on a 7-horsepower Indian motorcycle, 1:03 4-5. In the event for gasoline cars selling for \$4,000 and over, the Stevens Big Six established a mark of 1:10 1-5, which stood for some time. The climb for cars of from 24.1 to 40 horsepower inclusive was the closest and most interesting contest of the day. Hancock with a Stevens Little Six got away with first place rather easily in 1:22 3-5, but Knox, Buick and Chalmers-Detroit had a hot fight for the next position. They finished in the order named, but with only a fifth of a second between each one.

In the class for cars with piston area of 90 and over, Robinson and his Big Six covered the course in 1:09 4-5. When he came over the level stretch after leaving the first grade he was going over 70 miles an hour, and as he turned the course on the 23 per cent. grade his car slewed across the road and the rear wheel cut into the bank, throwing dirt and stones 30 feet into the air. Yet he held to the road and received a great ovation at the finish.



Half Way Up the Mountain There is a Level Stretch, and Here Many Onlookers Naturally Congregated.



Basle and Knox Fastest Performer.

Enthusiasm was at a high pitch now, and when in the gasoline free-for-all Basle whirled up the grade and around the turn on two wheels in 1:08, bedlam broke loose and for fully fifteen minutes the crowd yelled and cheered. Bourque, in a 38-40-horsepower Knox, added to the tumult by another wild dash up the hill in 1:09 4-5. Still Robinson was looked to for faster time. Hopes were dashed to the earth and joy changed to sympathy when his run was ended at the first quarter-mile by the accident that crippled him and ruined his car.

Borque won second place in the "record of the hill" climb by negotiating the course in 1:09 3-5. Basle went over the course again in 1:12 flat, not attempting to beat his former time. Baldwin, in the Stanley, cut this down three-fifths of a second. As he came up the roughness of the course jolted him time and time again from his seat. His car bounded rather than rolled, and faster time would have ditched him without much doubt.

The club spent considerable money in preparing the hill for the contest, but at that it was a little too rough for great speed. So great was the success of the meet from a popular standpoint, however, that it will probably be repeated next year, and in that case the club will spare no effort to get the road in the best possible condition. The management could not have been improved on and the club committees deserve the highest credit for their work.

OPEN TO ALL GASOLINE CARS.

1. Knox	48.8	Basle	1:08
2. Knox	38.8	Bourque	1:09 4-5
3. Stevens-Duryea	36.	Hancock	1:16 1-5
4. Stevens-Duryea	54.1	Robinson	Car overturned

RECORD OF HILL, OPEN TO CARS OF ALL TYPES AND MOTIVE POWER.

1. Knox	30.06	Bourque	1:09 3-5
2. Stanley Steamer		Baldwin	1:11 2-5
3. Knox	48.08	Basle	1:12

GASOLINE CARS SELLING FOR \$4,000 AND OVER.

1. Stevens-Duryea	54.1	Robinson	1:10
-------------------------	------	----------------	------

GASOLINE CARS SELLING FROM \$3,001 TO \$4,000.

1. Stevens-Duryea	36	Hancock	1:23 2-5
-------------------------	----	---------------	----------

GASOLINE CARS SELLING FROM \$2,001 TO \$3,000, INCLUSIVE.

1. Knox	38.8	Bourque	1:26 3-5
---------------	------	---------------	----------

GASOLINE CARS SELLING FROM \$1,251 TO \$2,000, INCLUSIVE.

1. Jackson		E. P. Blake	2:01 4-5
------------------	--	-------------------	----------



Bourque and the Second Knox Winner.

GASOLINE CARS SELLING FROM \$851 TO \$1,250, INCLUSIVE.

1. Buick	22	R. Burman	2:12 4-5
2. Cameron	16	E. E. Cameron	2:17

GASOLINE CARS SELLING FOR \$850 OR LESS.

1. Cameron	16	E. E. Cameron	2:34 3-5
2. Middleby		W. E. Smith	5:17 1-5

GASOLINE CARS WITH PISTON AREA OF 90 AND OVER.

1. Stevens-Duryea	54.1	Robinson	1:09 4-5
-------------------------	------	----------------	----------

GASOLINE CARS WITH PISTON AREA OF OVER 65 SQUARE INCHES.

1. Stevens-Duryea	36	Hancock	1:18 3-5
2. Knox	38	Hedstrom	1:28

GASOLINE CARS WITH PISTON AREA OVER 50 SQUARE INCHES AND UNDER 65.

1. Knox	30.06	Dennison	1:40
2. Cameron	24	E. E. Cameron	2:11 4-5

GASOLINE CARS WITH PISTON AREA OF 50 SQUARE INCHES AND UNDER.

1. Atlas	34	Ray Phelon	2:34 3-5
2. Bailey Speedster		Bertram Bailey	4:00 2-5

GASOLINE CARS WITH 40.1 TO 60 HORSEPOWER, INCLUSIVE.

1. Stevens-Duryea	54.1	Robinson	1:10 1-5
-------------------------	------	----------------	----------

GASOLINE CARS WITH 24.1 TO 40 HORSEPOWER, INCLUSIVE.

1. Stevens-Duryea	36	Hancock	1:22 3-5
2. Knox	30.06	Dennison	1:35 2-5
3. Buick	38.8	R. Burman	1:35 3-5
4. Chalmers-Detroit	40	Oliver Light	1:35 4-5
5. Bailey Speedster		Bailey	2:26 1-5

GASOLINE CARS WITH 15.1 TO 24 HORSEPOWER, INCLUSIVE.

1. Cameron	16	E. Cameron	2:15 1-5
2. Buick	22	R. Burman	2:24 3-5

CARS OWNED BY MEMBERS OF THE AUTOMOBILE CLUB OF SPRINGFIELD, ALL TYPES AND MOTIVE POWER.

1. Stanley Steamer	30	H. C. Knudson	1:23 4-5
2. Knox	38	O. Hedstrom	1:39 3-5

OPEN TO ALL GASOLINE STOCK CARS

1. Stevens-Duryea	36	Hancock	1:22
2. Knox	30.6	Dennison	1:36 3-5

MOTORCYCLES WITH 30.5 CUBIC INCHES IN CYLINDER CAPACITY AND UNDER.

1. Indian		Chas. Gustafson	1:24 4-5
2. Indian		Stanley Kellogg	1:29 2-5
3. Indian		H. B. Lake	1:50

MOTORCYCLES WITH 61 CUBIC INCHES IN CYLINDER CAPACITY AND UNDER.

1. Indian	7	Stanley Kellogg	1:03 4-5
2. Indian	7	Chas. Gustafson	1:09 2-5
3. Indian	7	H. B. Lake	1:13 2-5
4. N. S. U.	7	E. A. Shotwell	1:22 4-5



"Pete" Robinson and Stevens-Duryea "Big Six."



Hancock and Stevens-Duryea "Little Six."

WHY THE LONG STROKE FOR MOTORS?

By S. F. EDGE.

IN view of the present great interest that is being taken in the very incomplete R. A. C. formula for rating motors, it seems to me it is worth consideration why competitors in racing motor car events have started developing the long-stroke engine. Ordinarily commercial engines have got down to a reasonable proportion between stroke and bore, in fact, I think every up-to-date motor car maker was considering quietness, smoothness of running and economy in tires and mechanism almost before everything. Then the Royal Automobile Club of England, and the Automobile Club of France both suddenly started rating engines for competitive purposes by the size of the cylinders only. The result of this was that the far-seeing manufacturers, who understood their business, at once realized that these two clubs had brought out a formula which placed no restriction on stroke. Experiments were at once carried out, and it was then found that increasing the length of the stroke was almost as good as increasing the bore.

In developing the formula, diameter of cylinders squared multiplied by number of cylinders, divided by 2.5, the compilers of the formula no doubt assumed that long stroke motors would be run at slow speed, or in other words, the speed would be inversely proportioned to the length of stroke, and that the limit to speed and stroke (that is to say, piston speed), would be the strength of the moving parts.

This, however, is not the limiting factor, for it is possible to make these parts of material of such excellent quality, which, correctly disposed within the parts, ensures that their actual strength is much greater than the stress which they are called upon to withstand, with the motor running at maximum speed. There are two chief factors which limit the engine speed:

(1) The actual rubbing velocity of the pistons within the cylinders.

(2) The rapidity of actuation of the valves, and the speed with which the gases can be taken in and expelled from the cylinders.

With the piston speeds at present in vogue, even in races where they are maintained at the highest limit, it is possible to get over the piston lubrication difficulty by judicial lubrication at the expense of a smoky exhaust. The second factor, therefore, is the chief limitation so far as the engine speed of racing motors is concerned.

There are other factors which limit the speed, such as the rate of ignition, inflammation, and combustion of the gases, the speed of the ignition apparatus, etc., but the effect of these things is not so great as those above-mentioned. The rapidity of actuation of the valves does not depend upon the length of stroke of the motor, but since the speeds of motors of different strokes but of the same bore, have been found to be practically the same, it follows that the powers are approximately proportional to the length of the strokes. Racing motors which have a limited piston area, and from which it is desirable to obtain the maximum power, have, therefore, to be fitted with excessively long strokes.

The formula rates a motor with a short stroke the same as one with a long stroke, provided the piston area is the same in both, and although the performance of the long stroke motor, so far as actual H. P. is concerned, is undoubtedly better than the one with the short stroke, yet by rating their performances should be similar. Actual experience teaches that the formula does not give a true rating, and if the rating is to be a measure of the H. P. developed, the length of stroke must be introduced into the formula. It seems so very simple to have a formula which takes into account stroke, and I do think that whatever formula is selected it should be reasonably near the actual brake horsepower that the particular engine being calculated should give, if it was a modern, efficient, commercial engine.

The calculation of the power of an engine must necessarily

be based upon the force behind the piston and the speed at which it moves, whatever means are taken to express this; that is to say, we have three factors which it is necessary to ascertain before the power of an engine can be calculated, namely, the area of the piston, the pressure per square inch to which this area is subjected, and the number of feet through which the piston moves in one minute. It is obvious that it is only on the first of these three that definite limits can be put, and that any limits selected for the other two figures must be purely arbitrary and liable to require revision from time to time, the only alternative being to measure them on each individual engine. It seems to me that this would be too big a task to be undertaken for general purposes, and that the simplest way is to select what is known to be a fairly high average in each case. This would mean that designers would be stimulated to raise these figures to the greatest possible extent.

If we start with the usual horse power formula $\frac{P \times A \times S}{33000}$

33000

where P = mean effective pressure in lbs. per square inch.

$A = 11 \text{ times } \frac{D^2}{4} = \text{area of piston.}$

4

$S = L + N + 2 = \text{piston speed in feet per minute where}$

$L = \text{length of stroke in feet and}$

$N = \text{number of revolutions per minute}$

the simplest way is to boil it down by obtaining a constant from all the known or arbitrarily selected figures by which the variables can be multiplied or divided. To illustrate this, I assume mean effective pressure of say 80 lbs. per square inch, and a piston speed of say 1400 feet per minute; we then get the following formula from the above:

$$\frac{P \times L \times N \times 2 \times 11 \times D^2}{4 \times 4 \times 33000}$$

4 x 4 x 33000

Assuming a square engine, say 5" x 5" a piston speed of 1400 feet per minute would involve a speed of 1680 revolutions per minute, the formula therefore becomes:

$$80 \times L \times 1680 \times 11 \times D^2 = L \times D^2 \times 1.6 \text{ the result}$$

2 x 4 x 33000

being the horse power of one cylinder. Assuming a 5" x 5" engine, this formula gives 16.5 H. P. per cylinder, a figure quite easy to obtain, but assuming the stroke increased to 7" the formula gives 23 H. P. On the other hand, for a 4" stroke 13.3 H. P. is obtained. The difference in horse power between the extremes in this formula seems to me rather great, and possibly would tend to too much restrict the permissible variation in stroke. The way to correct this would be to use the square root of the stroke as a multiplier and suitably reduce the constant; this gives us the following formula:

$$2 L \times D^2 \times 1 = \text{H. P.}$$

This gives us for a 4" stroke cylinder 14.25 H.P. for a 5" 16-H.P., for a 6" 17.5-H.P., and for a 7" 18.9-H.P. These proportions are in accordance with practice. At the same time, the variation between the extremes should be sufficient to restrain designers from adopting extremely long or extremely short strokes. The reasons for wishing to handicap the long-stroke motors lie in the motors themselves. They present many difficulties, and are not so well adapted for driving motor cars as are engines with shorter strokes.

The chief objection to excessively long strokes are: (1) Size of engine, (2) vibration, (3) weight of engine, (4) noise from engine, (5) lack of flexibility, (6) difficulty of starting, (7) danger from pre-ignition, (8) necessity for stronger shafts, etc., in transmission gear, (9) increased wear and tear on tires.

(1) **Size of Engine.**—Long stroke engines must have proportionately long connecting rods, and on this account the distance from the center of the crank to the top of the cylinders is considerable, and the oil base must also be very deep to allow for

the swing of the crank. In order to get sufficient clearance it is necessary to carry the crankshaft higher in the frame, which necessitates raising the gearbox, clutch and other parts. This raises the center of gravity of the car considerably and thus it is more easily overturned and skids more readily. The engine, being built very high, necessitates a higher dashboard and bonnet, and the seats must therefore be raised to give a clear view, which also raises the center of gravity of the car. The larger crankcase occupies space usually taken up by the magneto, water pump, etc., and these have to be placed in more restricted positions, where they are less accessible.

(2) **Vibration.**—However well balanced an engine may be, there is always a slight amount of vibration. This need not be very much with short stroke motors, but with excessively long strokes it becomes very serious. It is due to the inertia forces of the reciprocating parts causing the crankcase and crankshafts to distort and "whip," and in addition to the discomfort of riding in the car there is the grave danger of the crankshaft breaking through fatigue due to the vibration.

(3) **Weight of Engine.**—Excessively long-stroke motors are exceedingly heavy. They are very high, the crankcases are very large to accommodate the swing of the crank, the valves must be large, so as to allow the large quantity of gas easy ingress and egress, and the valve ports, pipes, cylinder heads, etc., must be in proportion. The reciprocating parts must be made heavier than those for equal bore short-stroke motors. It is also necessary to employ a heavier design of crankcase and oil base, in order to make these strong enough to withstand the stresses due to high speeds combined with long strokes, and in order to withstand the vibration the crankshafts must be made considerably larger in diameter. These conditions result in an engine which is considerably heavier than an engine of equal power with a shorter stroke and greater bore.

(4) **Noise from Engine.**—This is due to vibration and valve actuation, and is so well known that nothing need be said about it.

(5) **Lack of Flexibility.**—The long-stroke motor is not flexible. The compressions require so much effort to overcome them that the necessary weight of flywheel is prohibited.

(6) **Difficulty of Starting.**—In order to turn the long-stroke engine by hand, it is necessary to have a half-compression

gear even for engines having a comparatively small piston area.

(7) **Danger from Pre-ignition.**—This is considerable, for although the pressure in the cylinder due to the pre-ignition may be no higher than that in a short-stroke motor under the same conditions, yet the crank arm being longer and the connecting rod being in a more oblique direction, the actual stresses induced in all parts are considerably higher.

(8) **Necessity for Stronger Shafts, etc., in the Transmission.**—Owing to the uneven torque due to the long stroke, and the wide variation between maximum, average and minimum torque, it becomes necessary to design the shafts to suit the maximum stress to which they will be subjected. Increasing the size of these shafts also adds to the weight of the chassis.

(9) **Increased Wear and Tear on Tires.**—This is due to the uneven torque of the long-stroke motors, the increased weight of the motor and chassis, and the greater amount of skidding between the tires and the road.

I think you will agree with me that the above is a good case against the abnormally long-stroke motor, and that it has no reason for existence except for the purpose of getting the better of a formula which is inadequate for present-day conditions of motor car engine manufacturing. The ordinary purchaser can always reckon that his tire bill will go up in accordance with the increased length of stroke.

Of course, no doubt it will be argued by those interested in powerful four-cylinder engines why a long stroke is desirable, and I think the reason for those so interested saying this is simply that, area for area, a six-cylinder motor can be run to develop greater horsepower than a four-cylinder with a short stroke, so that for powerful cars six-cylinder engine gives you the advantage over the four-cylinder, as with the same size engine one can get more horsepower, and as this horsepower is divided into six units instead of four, tremendous saving on one's tire bill and wear and tear on the mechanism is achieved.

I am sorry, in a way, when trying to obtain a really good formula for motor car competitions, that it brings out rather markedly the advantages of Mr. Napier's six-cylinder principle for motor cars, and this, no doubt, will have the effect of raising a lot of opposition of a commercial, but not scientific character. It remains to be seen what new objections will be raised.

AN ARGUMENT FOR THE LONG STROKE IN MOTORS

THE long stroke motor is distinctly advantageous, concludes Gerald Lavergne, after a close study in *Omnia* of the results obtained by all the most important European constructors. Its disadvantages, which may be summed up as increased area of the motor, increase in weight, increased losses in cooling (which can be diminished by the increase of the linear speed of the piston) are not to be compared with such advantages as the more homogeneous formation of the charge, the more complete accomplishment of the various cycles, and especially the better utilization of the explosive stroke, decreased wear, higher compression and the advantages which arise from it. Experience has abundantly proved the advantage of a long stroke. The question is what figures to adopt. Though it would be presumptuous at the present time to definitely fix the ratio of bore to stroke, certain modifications can be made with advantage to the figures generally adopted. The ratio of maximum pressure developed by the explosion to the average pressure is usually 15; there would be an advantage in diminishing this by reducing the piston area and increasing the stroke.

The proportions of the explosive mixture are generally 13.5 parts of air to one part of gasoline; the proportion might be increased to 15 parts of air. Thus, without fear of pre-ignition, the compression could be increased to 6 kilograms per square centimeter (85.3 pounds per square inch), or to 5 kilograms (71 pounds) for touring cars, in order to facilitate speeding up of the engine.

The linear speed of the piston, which, as shown by the table of leading French motors, model 1906, oscillated between 141 and 314 inches, increased to 472 inches per second in the single-cylinder Delage, which won the Grand Prix des Voiturettes. The speed could generally be carried to 310 to 390 inches a second.

Finally the ratio of stroke to bore, as shown in the table, of all the models built by over thirty leading French constructors has risen from 1.01 to 1.10 in 1906, to 1.11 to 1.20 in 1908, and has been increased to 2 in the single-cylinder Sizaire-Naudin racer, which competed in the Grand Prix des Voiturettes. We believe this ratio could advantageously be carried to 1.40 for touring cars or to 1.60 for small bore engines.

The following table shows the tendency of French and foreign constructors in the matter of ratio of stroke to bore, the models of 1906 and 1908 being compared from data supplied by the constructors.

	French cars 1906 Up to 6.2 ins. bore	French cars 1908	Foreign cars 1908
Number of builders	77	32	18
Number of motors	77	126	57
Percentage of short motors	10	25.5	7
Percentage of square motors	6	10.3	3.5
Percentage of long motors	84	84.2	89.5
Maximum ratio of stroke to bore	1.50	1.60	1.40
Percentage of ratios for long motors. {			
above 1.30	16	21.04	6
from 1.30 to 1.21 ..	9	17.4	26
from 1.20 to 1.11 ..	28	50.9	40
from 1.10 to 1.01 ..	30	10.3	28

SUGGESTIONS FOR THE MAN WHO DRIVES HIS CAR

By THOS. J. FAY, E. E., PRESIDENT SOCIETY OF AUTOMOBILE ENGINEERS.

THE first six cases of this table appeared in September 10 issue. All dealt with the failure of the motor to operate, either on account of faulty assembling or of defects in the carbureter or battery ignition. In the following cases are considered further reasons for the failure of the motor to operate;

CASE NO. 7—MOTOR WILL NOT OPERATE.

Known Quantities (involving the magneto).

- (a) Compression is normal.
- (b) Carbureter in normal state.
- (c) Timer in good order (battery ignition side).
- (d) Battery ignition wiring in good order.
- (e) Battery in good order.
- (f) Spark coil in good order.
- (g) Spark at the spark plugs.
- (h) Magneto system will not work.

Unknown Quantities (involving the magneto.)

- (a) Defective spark plug?
- (b) Soot on spark plugs?
- (c) Magneto out of time?
- (d) Secondary wiring leaks with compression (not shown in air)?

CASE NO. 8—MOTOR WILL NOT OPERATE.

Known Quantities (involving the magneto).

- (a) Compression is normal.
- (b) Carbureter in normal state.
- (c) Timer in good order (battery side).
- (f) Battery ignition wiring in good order.
- (g) Battery in good order.
- (h) Spark coil in good order.
- (i) Magneto system will not work.
- (j) No spark at the spark plugs.

Unknown Quantities (involving the magneto).

- (a) Secondary wiring open circuit?
- (b) Secondary wiring short circuited?
- (c) Distributer contacts not bearing?
- (d) Short circuited distributer?
- (e) Primary contacts in distributer worn down and not making contact?
- (f) Wiring wrongly connected?
- (g) Magneto wiring (armature) short circuited?
- (h) Permanent magnets demagnetized?
- (i) Driving mechanism adrift?
- (j) Condenser defective?
- (k) Ground connection open circuited?
- (l) General leak due to oil and dirt?

CASE NO. 10—MOTOR WILL NOT OPERATE.

Known Quantities (involving the cranking.)

- (a) Compression is normal.
- (b) Carbureter in normal state.
- (c) Ignition systems in good order.
- (d) Gasoline supply available.
- (e) Motor "back kicks."

Unknown Quantities (involving the cranking).

- (a) Hot motor?
- (b) Spark advanced?
- (c) Lost motion in spark control system?
- (d) Combustion chamber incrustation?
- (e) Detonating ingredients in gasoline?
- (f) High compression and slow cranking?
- (g) Timer adrift?

reasons for noisy running; faults in the clutch and transmission, and finally, causes for excessive cost of maintenance. The same course of procedure is followed; the known quantities or symptoms are first verified, and then, one by one, the unknown quantities are eliminated until the cause of the trouble appears.

- (h) Broken tooth in half-time gear?
- (i) Camshaft out of true relation?

CASE NO. 10—MOTOR RUNS NORMALLY.

Known Quantities (involving the clutch).

- (a) The clutch holds.
- (b) Impediment to speed changing lever.

Unknown Quantities (involving the clutch).

- (a) Kink in the sliding gear shaft?
- (b) Bunged-up gear teeth?
- (c) Linkage adrift?
- (d) Sticky bearing?
- (e) Broken lever?
- (f) Broken or sprung gear case?
- (g) Congealed oil in sliding mechanism?
- (h) Lost keys?
- (i) Dry surfaces (no oil)?

CASE NO. 11—MOTOR RUNS NORMALLY.

Known Quantities (involving the gears).

- (a) Change speed lever is free.
- (b) Clutch movement is free.
- (c) Clutch holds.

Unknown Quantities (involving the gears).

- (a) Key out of a gear?
- (b) Stripped gear?
- (c) Shaft spread?
- (d) Shaft twisted off? (Planetary especially.)
- (e) Gears slide by?
- (f) Broken linkage?

CASE NO. 12—MOTOR RUNS NORMALLY.

Known Quantities (involving the clutch).

- (a) The change speed lever is free.
- (b) Clutch movement is free.
- (c) The clutch does not hold.

Unknown Quantities (involving the clutch).

- (a) The leather facing is oily?
- (b) The leather facing is charred?
- (c) The leather is hard and does not press uniformly?
- (d) The clutch spring is weak?
- (e) The clutch is out of alignment?
- (f) The sliding bearings are dry?
- (g) The clutch is worn and will not advance to a bearing?
- (h) Clutch band broken?
- (i) Clutch lever bent?
- (j) Dog bent or worn?
- (k) Toggle with excessive lost motion?
- (l) Foot lever strikes deck?
- (m) Take-up all in?
- (n) Disc facings worn out?
- (o) Discs adrift from keys?
- (p) Cork inserts worn below surfaces?
- (q) Clutch cone worn?
- (r) Wedge cut away?
- (s) Screw worn?
- (t) Excessive oil?
- (u) Dirt impediment?

- (v) Take-up backs off?
- (w) Chassis lateral backs away from strain?
- (x) Spiral band too long?
- (y) Affected by centrifugal force?
- (z) Brakes either on or too tightly adjusted?

CASE NO. 13—MOTOR RUNS NORMALLY.**Known Quantities (involving the clutch).**

- (a) The change speed lever is free.
- (b) The clutch sticks.

Unknown Quantities (involving the clutch).

- (a) "Frozen" shaft?
- (b) Lack of lubrication?
- (c) Congealed oil (cold weather)?
- (d) Sag in chassis frame?
- (e) Shaft twisted?
- (f) Spring broken?
- (g) Disc deformed?
- (h) Broken motor or gearcase arm?
- (i) Deformed driving arm?
- (j) Thickened leather or other facings of disc clutches?
- (k) Damage due to thrust?
- (l) Bent crankshaft?
- (m) Bent planetary shaft?
- (n) Deformed linkages?
- (o) Stuck "dogs"?
- (p) Worn screw?
- (q) Tight spiral band?
- (r) Dent in housing?
- (s) Shifted motor?
- (t) Shifted transmission?
- (u) Dirt (foreign substances)?
- (v) Bent foot pedal?
- (w) Insecure locking devices?
- (x) Centrifugal force?
- (y) Torn leather facing of cone clutch?
- (z) Worn faces changing the distance of travel?

CASE NO. 14—MOTOR RUNS NOISY.**Known Quantities (involving the motor).**

- (a) Compression moderate.
- (b) Runs hot on retarded spark.
- (c) Knocks badly on long grade.

Unknown Quantities (involving the motor).

- (a) Carbureter delivers rich mixture.
- (b) Excessive lubrication.
- (c) Poor selection of lubricant.
- (d) Cooling system inefficient.
- (e) Carbon deposit in cylinders.

CASE NO. 15—MOTOR RUNS NOISY.**Known Quantities (involving the motor).**

- (a) Compression moderate.
- (b) Lubrication good.
- (c) Cooling system efficient.
- (d) Carbureter working correctly.
- (e) Timing correct.
- (f) Knocks at the higher speed range.

Unknown Quantities (involving the motor).

- (a) Pistons a loose fit?
- (b) Pistons worn?
- (c) Piston pin bearing slack?
- (d) Crank pin bearings slack?
- (e) Main bearings slack?
- (f) Crankshaft bent, imparting side shake to connecting rod?
- (g) Crankshaft end motion?
- (h) Valve clatter due to strong springs?
- (i) Valve clatter due to wear in guides?
- (j) Loose valve lifts or tappets?

- (k) Loose half-time gears?
- (l) Camshaft twisted?
- (m) Timing deranged?
- (n) Flywheel loose on crankshaft?
- (o) Clutch scraping?
- (p) Connecting rod striking crankcase?
- (q) Stray bolt or nut adrift in crankcase?
- (r) Wheezing of air or mixture through open seams?
- (s) Exhaust manifold open at joints or elsewhere?
- (t) Dry bearings due to lack of oil?
- (u) Cylinder loose?
- (v) Fan striking cooler (common)?
- (w) Lost motion in timer?
- (x) Magneto armature striking?
- (y) Flywheel scraping on pan?
- (z) Water pump worn?

CASE NO. 16—MOTOR RUNS NORMALLY.***Known Quantities (involving noise).**

- (a) Car standing, motor runs noiselessly.
- (b) Car running, motor runs noiselessly.
- (c) Car runs noiselessly, direct on the high.
- (d) Excessive noise on low gears.

Unknown Quantities (involving noise).

- (a) Gears not set to the pitch line?
- (b) Gears not properly shaped?
- (c) Pitch line velocity of gears too high?
- (d) Gear teeth bunged up?
- (e) Gearshafts loose in bearings?
- (f) Oil leaked out (planetary)?
- (g) Transmission case full of grit?
- (h) Shaft end motion (thrust bearing not adjusted)?

CASE NO. 17—MOTOR RUNS NORMALLY.**Known Quantities (involving noise).**

- (a) Car standing still, motor runs noiselessly.
- (b) Car in motion, motor runs noiselessly.
- (c) Car makes noise on all gears.

Unknown Quantities (involving noise).

- (a) All possibilities of case seventeen?
- (b) Bevel gears not adjusted?
- (c) Bevel gears not properly shaped?
- (d) Bevel gears not lubricated?
- (e) Compensating gears deranged?
- (f) Lost motion in live axle?
- (g) Universal joints worn?
- (h) Wheel bearings loose?
- (i) Sprockets worn?
- (j) Slack sprocket chains?
- (k) Lost motion in radius rods?
- (l) Lost motion in distance rods?
- (m) Propeller shaft twisted?
- (n) Jackshaft twisted?
- (o) Loose spring shackles?
- (p) Steering linkages loose?
- (q) Steering knuckle, lost motion?
- (r) Lost motion in steering gear?
- (s) Flapping mudguard?
- (t) Loose hood?
- (u) Loose apron?
- (v) Squeaks for oil in small bearings?
- (w) Body loose on chassis frame?
- (x) Click of roller bearing washers?
- (y) Spring clamps loose?
- (z) Shock absorbers loose?

*Note.—In some cars the direct is on the third speed, in others on the fourth, and there are some designed to give direct drive on both third and fourth. It will be understood that "direct drive" as implied in such cases is a play on language. It is direct as regards the change-gears only. The drive through the bevel gears is not eliminated.

CASE NO. 18—THE CAR RUNS NORMALLY.**Known Quantities (involving maintenance).**

- (a) The motor is sweet running.
- (b) The transmission is adequate and silent.
- (c) The compensation (differential) serves the purpose.
- (d) The live rear axle is silent and satisfactory.
- (e) The sprockets are silent and satisfactory.
- (f) The propeller shaft performs properly.
- (g) The wheels are of adequate diameter and strength.
- (h) The steering is irreversible and steady.
- (i) The gear ratio is appropriate to the motor.
- (j) The cooling system is efficient.
- (k) The brakes are powerful and dependable.
- (l) The lubrication is profuse and dependable.
- (m) The ignition is adequate and free from petty annoyances.
- (n) Protection from dust and the elements, complete.
- (o) The tire equipment is good and satisfactory.
- (p) The carburetor works under all conditions.
- (q) The fuel supply is adequate.
- (r) The spring suspension is flexible and satisfactory.
- (s) The lighting equipment is efficient and dependable.
- (t) The clutch is not "fierce."
- (u) The clutch will hold.
- (v) The bearings are of adequate dimensions for the work.
- (w) The chassis frame is rigid and strong.
- (x) The universal joints are strong and free from lost motion.
- (y) The battery equipment is of ample capacity.
- (z) The tool kit is complete and appropriate.

Unknown Quantities (involving maintenance).

- (a) The oil will become acid and etch the polished surfaces?
- (b) The "decarbonizer" will attack the cylinder surfaces?
- (c) The "dope" in the fuel will etch the cylinder surfaces?
- (d) The "inflating gas" will deteriorate the tires?
- (e) Open wounds in the tires will let dampness into the fabric and enable mildew to attack the same?
- (f) The leather facings will be burnt if the clutch is permitted to slip?
- (g) The fiber facings on the brakes will burn out if the brakes are kept "on" while the car is in motion?

- (h) The sprocket chains will wear out if they are not kept clean and lubricated?
- (i) The transmission will be noisy if "grease" is not used?
- (j) The grease in the transmission will do damage if it is not changed regularly?
- (k) The lubricating oil loses its lubricating properties?
- (l) The "clash gears" will be bunged up if the shifting is carelessly performed?
- (m) The springs will deteriorate if they are not kept oiled?
- (n) The crankshaft will deteriorate the more quickly if the motor is "raced"?
- (o) Excess lubrication will end in carbon deposits?
- (p) Excess gasoline defeats power and increases cost?
- (q) A steady gait ends in the greatest average speed?
- (r) The car deterioration increases enormously with speeding for short distances, only to violently apply the brakes thus alternating between fast and slow?
- (s) Parts subjected to "shock" will deteriorate in that the metal is rendered crystalline; the more quickly if the car is abused?
- (t) Mud left on the body over night takes varnish off with it the next morning?
- (u) Negotiating curves at high speed does much damage?
- (v) A maker's guarantee is of no value to a reckless owner?
- (w) "When the cat is away the mouse will play." The chauffeur does not own the car?
- (x) Wet rubber cuts easily. Be careful on sloppy roads?
- (y) Noise in a car is like pain in a man. It indicates some derangement to be looked after before it is too late?
- (z) In relation to (a), (b), (c) and (d), it is to say, if the several products referred to are not appropriate, the owner of a car must assure himself of the characteristics of such products before he takes a chance, for, when the damage is done, he will have to pay the score?

In conclusion, it may be well to say, the "known quantities" as herein referred to are distinguished from the "unknown quantities" in that the first named are certain of identification, while the second are possible and to be looked for; in many cases, the sequences. The unknown quantities (so-called) are put as questions, under the circumstances, and are to be worked through and corrected until the trouble is cured.

EFFECT OF THE SPARE WHEEL ON THE HUB BEARINGS

By HENRY HESS.

THERE is a condition accompanying the use of the spare wheel of that type which is attached to the rim of the regular wheel, such as the Stepney, Burrowes, etc., which is not as yet generally recognized, but is of decided importance, namely, that the use of these wheels will in many cases affect

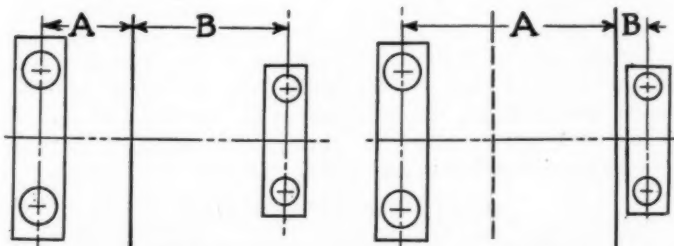


Diagram Showing Load Line with and without Spare Wheel.

the safety of the wheel bearings very considerably, even to the extent of positively endangering them.

Fig. 1 is a rough diagram indicating the center line of the tread of the regular wheel with reference to the usual arrange-

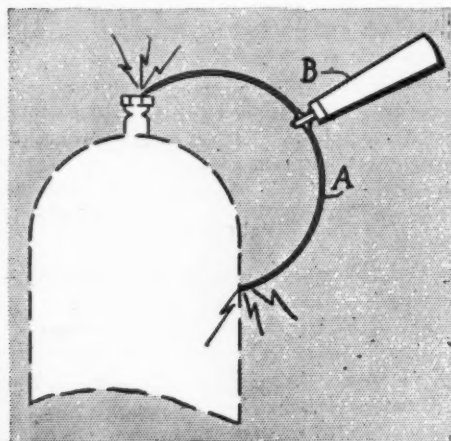
ment of the ball bearings in the hub. As the plane of the tread passes between them the load sustained by the wheel is divided between the two bearings in inverse proportion to the distances A and B. The bearings are selected for corresponding carrying capacities.

The use of a spare wheel changes the conditions to those indicated in Fig. 2. Here the dotted line is the plane of the regular wheel, as in Fig. 1, but as this wheel no longer carries any load it does not come into consideration. The full vertical line represents the plane of the spare wheel tread; depending upon the size of the tires and the relative location of the bearings, this line may fall within the small outer bearing, in line with it, or even beyond it. In every case the distance B is greatly shortened, with a corresponding increase of load on the outer bearing. This makes the load much larger than originally contemplated, and in all likelihood sufficiently so as to seriously endanger the bearing.

If a spare wheel of this type is to be used, then such use should be restricted to the unavoidable minimum for getting home, and even then cautious driving to avoid all sudden strains is imperative. Undoubtedly these wheels fill a real need, but the user should remember that a broken bearing is not nearly so easy to repair as a puncture.

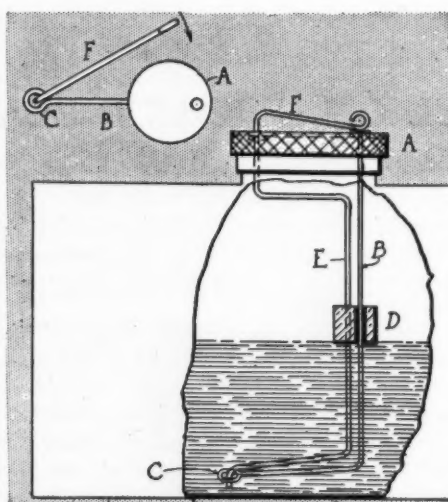
WRINKLES OF INTEREST TO THE AUTOIST

WHERE a high-tension magneto is employed for ignition, it is rather difficult to test the spark plugs in order to find which one is misfiring, particularly when the autoist is not sufficiently familiar with the mechanism of the magneto and its internal connections to figure it out on the latter. Of course,



For Testing Spark Plugs.

on a coil and battery system it is easy enough to hold down one of the vibrators at a time, taking each cylinder in turn and thus locating the trouble. Or where a dual system of ignition using a set of accumulators and a high-tension magneto operates through the same set of plugs, it is not at all difficult to locate plug troubles, as the battery side may be resorted to, using the coil vibrators in the usual manner. But it is frequently the case that either a single, non-vibrating coil is employed, or there are two entirely independent sets of spark plugs. For testing the plugs under such conditions the simple device shown in the illustration will be found very convenient. To make this, take a piece of stiff wire, *A*, several inches in length and bend in a half circle as indicated. At its center fasten a handle, which for convenience sake must be of insulating material, otherwise it will be not a pleasant device to use. The handle from a discarded knife switch will serve the purpose admirably, although a wooden one will do equally well where it is kept dry. To test a plug with the aid of this little device, it is only necessary to bring one end of it in contact with the binding post on the plug while the other is allowed to rest against the cylinder, or for that matter any other part of the motor, as it serves to short-circuit the plug to which it is applied, so that if the other three cylinders fire regularly during the operation, the plug under test is the one at fault and should be removed. The testing operation may be carried out very quickly.



Details of the Float Mechanism.

A Handy Gauge of Home Make.

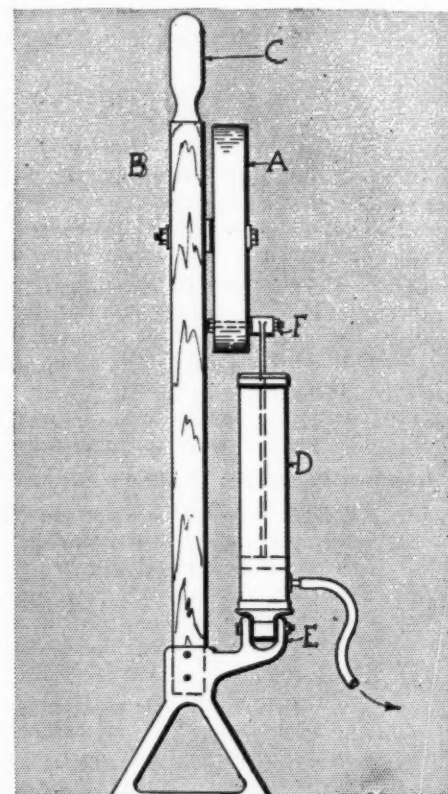
To tell how much gasoline there is in the tank is always a matter of guesswork, and a stick is not always handy. An easy way to make a gauge that is always reliable is as follows: Drill a hole in the tank cap *A* near the edge, and get a strong and stiff piece of wire *B*, long enough to reach to the bottom of the tank *A*. Bend one end at right angles about 1½ inches long

and make a small eye *C*, on the end. Get a small cork *D*, and in the center of it put a piece of tubing so it will slide up and down freely. Put the cork on the wire and put it in the tank. Stick the wire through the hole in the cap, and see that the wire is straight up and down and that the end of the wire with the bend in it is on the bottom of the tank. Solder the wire to the cap *A*, where it is. Get another wire *E*, as stiff as the other one and bend it as illustrated. Fasten on the other one. A catch

should be soldered on the top of cap *A*, to hold the wire against the cork when it is drawn out. Before the cap is unscrewed to see how much gasoline is in the tank, pull the wire lever *F*, as indicated by arrow in plan view, over on the catch on the cap *A*. This done, the wire will hold the cork *D* at the height the gasoline is, making a very easy way to find out how much gasoline there is in the tank.

Simple Power Pump.

Out of an oak board 1 inch thick cut a disk *A*, 7 inches in diameter, drill a ½-inch hole in the exact center. Put it on a lathe and turn the edge true. Next cut an oak strip *B*, 18 inches long and 1½ inch wide; turn a handle *C*, on one end, and on the other end fix a handle as shown. Now with a ½-inch bolt 2½ inches long fasten disk to oak strip with a washer between. Next get a good strong, and rather short bicycle pump *D*, and fasten to support *E*. Make a head *F*, on the end of the piston rod, with a hole through it, and with a strong wood screw fasten it to the disk *A* about ¼ inch from the edge. Be sure the piston reaches the bottom of the cylinder before the piston rod is cut the right length. The cylinder must be pivoted at the end *E*, so it can move back and forth when the disk *A*, revolves when it is held against a rear wheel. Fasten a rubber tube to the pump long enough to reach all the wheels, with a valve connection on the end; jack up one of the back wheels, throw in the low gear and hold the disk against the tire, and the pump will do the rest.



Construction of the Power Pump.

Avoid Using Abrasive Tools.

One of the commonest failings of the amateur autoist is to resort to the pipe wrench or the gas pipe pliers to loosen a refractory nut or connection, but any man who takes pride in the appearance of his motor and its fittings will avoid this religiously as one of the most important of the many "Don'ts." Such tools were never intended to turn nuts or similar fittings, and, as they only grip by sinking into the metal, the slightest slip means an abrasion of the metal that cannot be remedied. Square and hexagonal nuts soon become round and then shapeless, while tubing is hopelessly marred.

LETTERS INTERESTING AND INSTRUCTIVE

INFORMATION WANTED ABOUT IOWA LAWS.

Editor THE AUTOMOBILE:

[1,541.]—I would like to know where one can obtain a book containing the automobile laws of Iowa or laws on the right of way. I want to know this especially: an automobilist comes up behind a team and blows his horn; the team keeps the road, and, as the automobile turns out to pass, the driver waves his hand as a signal to stop; if the automobilist keeps on, is he responsible for damages in case the horses are scared?

I also want to know how to figure horsepower by the A. L. A. M. formula.

R. F. JOHNSTON.

Farragut, Ia.

Information about the Iowa automobile laws can be obtained from the Secretary of State, Des Moines. We do not know whether it is published in book form, however. Section 9 of the law of 1904 reads: "Any person operating a motor vehicle shall, at request or on signal by putting up the hand, from a person riding or driving a restless horse or other draft or domestic animals, bring such motor vehicle immediately to a stop, and, if traveling in the opposite direction, remain stationary, so long as may be reasonable to allow such horse or animals to pass, and if traveling in the same direction, use reasonable caution in passing such horse or animals, and the operator and occupants of any motor vehicle shall render necessary assistance to the party having in charge said horse or other draft animal so passing." Nothing is said about responsibility for accidents.

The A. L. A. M. formula is bore of cylinders in inches, squared, times number of cylinders, divided by two and one-half, equals horsepower.

BATTERY WIRING AND LUBRICATION.

Editor THE AUTOMOBILE:

[1,542.]—1. When using eight dry cells, should they be connected in series parallel, or in sets of four each connected series multiple?

2. My double-opposed motor runs much quieter when the crankcase is filled with oil to the extent that the exhaust smokes. By attaching baffle plates to the cylinders could this same oil level be maintained without the oil reaching the combustion chamber to such an extent, and if so, how should the baffle plates be made and attached?

SUBSCRIBER.

Columbia, Tenn.

The best arrangement is the series-multiple, as shown in the diagram on page 297 of THE AUTOMOBILE of August 27. This wiring gives the voltage of four cells, that is, from four to six volts, and the amperage of two. Series-parallel and series-multiple are one and the same thing. Putting all eight cells in series would be apt to injure the coils and their vibrators.

The baffle plates would not do much good on a horizontal engine, as when the oil reached any considerable height in the crankcase it would begin to flow through the slot for the connecting rod. In a vertical motor only the splash has to be considered, and here the baffle plates are very effective. The best plan would be to find the cause of the noise and correct it, instead of trying to muffle it with the oil. Very likely the connecting rod big ends need adjustment.

WHEN DO THE FACTORIES WORK HARDEST?

Editor THE AUTOMOBILE:

[1,543.]—During a discussion, the question arose as to whether the automobile factories are rushed harder during the Summer months than in the Fall and Winter. Will you kindly settle the dispute by giving your opinion on the same?

Uncasville, Conn.

M. HORENSTEIN.

The rush season depends largely on the factory, but it is much more likely to come in the Winter than in the Summer, because most buyers want their cars delivered in the Spring. All the larger factories, however, work on a regular schedule and have neither rushes nor lay-offs.

A CURE WITHOUT AN EXPLANATION.

Editor THE AUTOMOBILE:

[1,544.]—I have read with great interest Letter No. 1529, under "Letters Interesting and Instructive" in your issue of September 3, as I experienced exactly the same trouble, which was finally corrected after two months of experimenting. The float feed carbureter with metal float on my four-cylinder car persistently dripped gasoline after the engine was stopped, although I was absolutely certain that the valve was tight. I purchased a new float and this did not correct the difficulty, and after lowering the level by small increments finally gave up and returned the complete carbureter to the factory for repair. When received and installed the trouble was worse than ever. Against the advice of other motorists I began experimenting by adding weight to the float by means of wire wound about body, and after a few trials found that this completely overcame the dripping. I then removed the wire and after carefully weighing it on delicate scales, flowed an equal amount of solder on the bottom of float and have since had no trouble whatever. This method has recently been applied to another carbureter suffering with same symptoms and again effected a permanent cure.

E. M. KINNEY.

Schenectady, N. Y.

We have no doubt as to the permanency or effectiveness of the cure, which you state was accomplished in two separate cases on different carbureters, but must acknowledge ourselves at a loss as to the principle on which the remedy was applied. In other words, we find it difficult to understand why, when a certain level of gasoline in the float chamber causes the carbureter to drip after the engine is stopped, raising that level should prevent the dripping. Exactly what causes the dripping in the first place does not seem to have been settled, or in fact, any explanation attempted. It may be that the hot manifold continues to vaporize gasoline after the motor stops, and having no outlet this condenses and then drips out as the metal gets cold, but such an explanation is not plausible in view of the cure effected by means of raising the level, as this would only tend to aggravate matters. We would like to hear more about the case, as well as from other readers who have had similar experiences.

MR. DURYEA ON VARIED SUBJECTS.

Editor THE AUTOMOBILE:

[1,545.]—I fear your zeal in defense of the four-cylinder form has led you into more grievous error than my defense of the three showed. Your statement that the difference between one-ninth and one-sixteenth is 40 per cent. reminds me of the Pennsylvania Dutchman who leased his farm for oil purposes and was to receive one-eighth of the oil as rental. This looked like so small a part of the wealth boiling out of his ground that his cupidity would not let him rest, so he asked for a new contract, and after some talking an ironclad one granting him a rental of one-twelfth was executed. It took a lot of explanation to make clear to him that he now got less than before, and he exclaimed: "Well! I never knew before that eight was more than twelve."

The difference is less than five per cent., which amount is so small that many people cannot notice it. An expert in such matters can by actual test notice two per cent. difference in vibration, but this is only possible at slow speeds when the impulses are far apart. At the speeds now commonly used, with other things identical except that the three-cylinder for a given power must be a little larger than the four and have a slightly larger flywheel, very few people can tell by riding in the vehicle which motor is pulling them.

High compressions are not so common as they were a few years ago, and the fact that the public uses anything does not prove it best. As a matter of fact the masses are nearly always behind. Most of them are still using horses.

Say to "Inventor" that the belt drive is a delusion. The way those belts will run off the pulleys on bad roads will surprise him. They are fine in a shop where things stay in line, but on the roads found in America the belts are in the wrong place when hard work is to be done. Duryeas were belt-driven for a while because the public asked us why we did not use this "simple system" instead of the splendid spur gear and individual system adopted by us in '93. The public is slowly learning what it ought to have, and when it does learn as much on this subject as the makers know then it will be proper to give it what it wants; but in the years gone by

every attempt to give what was wanted even though wrong has been bad for somebody or other in practically every instance.

If Mr. Waldin will grind the float valve he will stop the dripping from his carbureter. The float has very little lifting ability and so does not force the valve onto its seat very effectively. This necessitates most careful grinding. If a little trace of soap is on the seat it will hold better. I favor a valve point as small as possible, so that the float can work to the best advantage.

Without wishing to appear as criticizing Mr. Fay's able and instructive article, I call attention to the fact that the "Times-Herald" contest at Chicago in 1895 was won by a Duryea having a spray carbureter and Duryea rigs that used this device for several years before this. The fuel tank in most of the early Duryeas was placed where any leak could not drop on the motor, and this meant under the floor, so a pump was used to raise the fuel to the carbureter, which was near the engine, where it was warm. The float was adopted in 1897, and the auxiliary air valve in '98.

I feel sure Mr. Fay's remarks do not apply to the type of carbureter used on the Duryea rigs all these years. They have usually been open so the spray could be seen by looking into the open end and the fan shape of the particles of liquid as they left the small nozzle showed very plainly that there was no stream. The passing air travels so much faster than the liquid at that point that it tears off each projecting particle of liquid and carries it away as a small spray globule. This was easily proved by detaching the suction pipe and blowing through the carbureter.

If the carbureter was capable of doing its duty, each puff of one's breath would produce a fog so fine that it could not be seen unless in good light, although one's hand would wet quickly if held in line. If there were large drops present the carbureter had some fault which could usually be seen. I am not able to understand why there should be any difference in the performance of the carbureter when sucked through and blown through. The air moves as a result of a difference in pressure on opposite ends of the air passage, and if there is no connection with the gasoline surface the fact that these pressures are slightly nearer to atmospheric in one case than in the other can certainly not produce a spray in one case and a stream in the other, as is asserted.

CHAS. E. DURYEA.

Reading, Pa.

Mr. Duryea's arithmetic is startling, to say the least, and it would be very interesting to know how he arrived at the conclusion that the difference between one-ninth and one-sixteenth is only five per cent. However, until he brings forward some additional proof we shall stick to our original assertion that the difference is 40, or, to be exact, 43.75 per cent. For the rest, we have a great deal of faith in public opinion. It has been found right many more times than wrong, and usually has pretty good foundation for its decisions.

AUTO NEWS FROM THE SUNNY SOUTH.

Editor THE AUTOMOBILE:

[1,546.]—I am a subscriber to both your magazines, "The Automobile" and "Motor Age," and read them with interest, but very seldom see anything in them from this section of the South, and would like to state that we are not altogether dead to the automobile world.

We have a little city of 50,000 inhabitants, and among them a number of automobile enthusiasts. There are about 200 cars registered in the city; among them are the Oldsmobile, White, Franklin, Maxwell, Buick, Mitchell, Thomas, Chalmers-Detroit, Ford, Bianchi, Elmore, Matheson, Packard, Peerless, Stevens, Pope-Toledo, Rambler, Studebaker, Holsman, Schacht, Babcock, Pope-Waverly, and others.

There are two up-to-date garages in the city and several repair shops, and all of them have experienced mechanics and turn out good work. The roads in the county are in very fair shape and with a little work could be put in good condition. Mr. Lamar of this city, who drives an Oldsmobile roadster, has just completed a run from Macon, Ga., to Lansing, Mich., and return, a distance of over 3,200 miles, without any mishap, and reports a great trip. The outlook for the fall and winter auto trade here is good, and I think the agents here will do fine business.

Macon, Ga.

S. R. JAKUES, JR.

If it is seldom that the South is heard from, it is evidently not because there is a dearth of automobiles there, to judge from your letter, but simply because the doings of their owners are not allowed to find their way over the "line." On this account, people are apt to come to the conclusion that there is little automobile news from the "land of cotton" because there are no automobiles down there to hear about. The chief thing lacking appears to be a live press agent. We would be only too glad to publish more news about the auto enthusiasts in the South.

IDEAL CARS ARE STILL POPULAR.

Editor THE AUTOMOBILE:

[1,547.]—Unless you have rung the bell on "ideal cars," I should like to submit one. Let it be understood that this is primarily a touring car. It is doubtful if any man could get up a car ideal for all purposes. Specifications:

Body—Straight line, five passengers, touring, metal.

Wheelbase—124 inches.

Tires—Front and rear, 36 by 41-2; demountable rims.

Axles—I beam front and rear.

Drive—Double side chains with mud-proof, dust-proof, and oil-tight metal chain case, something similar to that on the Chadwick Great Six.

Springs—Front, semi-elliptic, with side rail attachment for rear ends as on 1908 50-horsepower American Tourist; rear, platform.

Steering—Thread and nut, 17-inch wheel.

Cooling—Water, flat tube radiator, modified square in shape (American Tourist) to allow of greatest capacity within given limits.

Brakes—Three sets; regular hand and foot brakes, both being internal expanding, side by side in wide drums on rear wheels, as on the American Roadster, and an extra foot brake on the jack-shaft, not to be used regularly, in order to save the chains.

Motor—Four-cycle with four offset cylinders cast in pairs. Valves large, though all on same side. Bore, 5 1-4; stroke, 5 1-2 (American Roadster).

Ignition—Double jump spark with high tension magneto and battery systems.

Lubrication—Splash, force feed. Pipes to cylinder walls and two to crankcase, divided into two separate compartments, as on Peerless.

Clutch—Disc, Stevens-Duryea type.

Flexible Joints—Two between clutch and transmission, similar to arrangement on Peerless.

Transmission—Four-speed selective, with direct drive on both third and fourth speeds as on 1908 40-45 Isotta Fraschini.

Bearings—All ball, except engine, which should be plain.

The ideal touring car should be chain driven, because when chains are encased as specified, none of the objections usually urged against this type apply, and because this construction is lighter and gives a better weight distribution, meaning less wear on tires, especially rear ones, and a car that rides better and behaves better generally on anything but perfect roads.

Furthermore, this construction admits of the type of transmission specified, highly desirable for a touring car, to be used in mountainous as well as level country, and permits of the unit construction of the transmission and driving gears, the advantages of which have been so extolled lately without resorting to the expedient, monstrous on a high-powered touring car, of mounting the transmission on the rear axle, as on some shaft-driven cars to-day.

Touring by Americans of America, where we cannot hope to have consistently good roads for many, many years, is just beginning to be popular. American manufacturers are, therefore, making a mistake in accepting as final the present popularity of the shaft-driven type, acquired by the use of cars for by far the most part, for pleasure driving in and around cities and suburbs. Instead they should exercise a little ingenuity to develop a satisfactory chain case, thereby perfecting the superior type of vehicle for touring, if, in fact, not all purposes, and one for which there will be a great demand when its advantages are more universally understood and after automobilists generally have had more experience with our country roads.

DEMAREST LLOYD.

Redstone, N. H.

Your specifications are certainly specific enough. We think, however, that you will find several cars on the market which conform pretty closely to your principal requirements.

A YOUTHFUL AUTOIST FROM KENTUCKY.

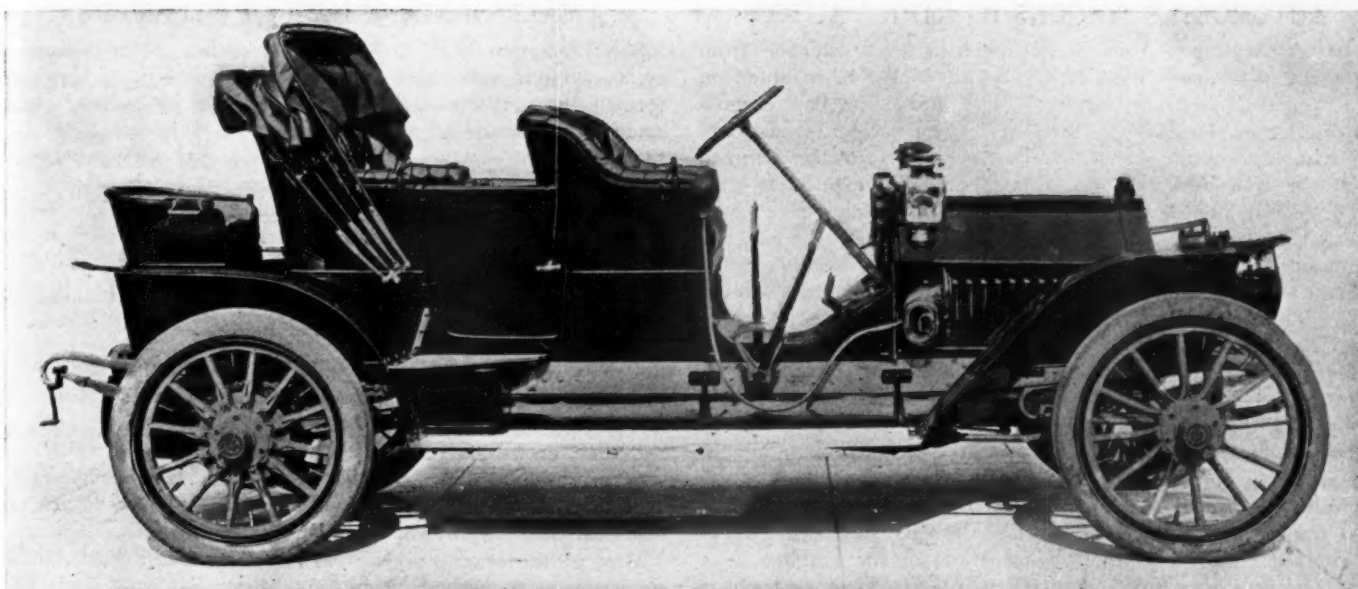
Editor THE AUTOMOBILE:

[1,548.]—I am a little girl eleven years old. I have just been reading in papa's journal about Miss Bernice Haynes driving a car, and I was very much interested. I have been driving papa's car a little ever since I was eight years old, and, like Miss Haynes, I began by driving around the block alone on the low gear, and now mamma and I go most anywhere by ourselves over our beautiful Kentucky roads. "Dad" insists on the engine being stopped whenever we leave the car, so I think I can give Miss Haynes a pointer on getting it started. I find a place to stop with the car's head a little down hill, and, when we get ready to start, turn on the switch with the spark lever well back, throw off the brake, and, when we get going some, throw in the high gear, and away we go without cranking.

Papa says he would rather trust us out with "Old Cadillac" than with a horse, and I have never been towed in. Papa is teaching me how to care for the engine and make adjustments, and I am getting so I understand it pretty well.

Versailles, Ky.

NATALIE H. BROTHER.



1909 Model of American Locomotive Car, fitted with Close-coupled Body.

THE AMERICAN LOCOMOTIVE CAR FOR NEXT YEAR

THOSE who have been interested in the product of the American Locomotive Company and the progress of American manufacturers will be glad to learn of the new policy and prices for 1909. Manager James Joyce made the statement that hereafter no Berliet cars would be made in this country, although the American Locomotive car from the same factory at Providence will be practically the same car in design and material. The name will be different, but otherwise it will be unchanged except by improvements in details. The Locomotive Company made the three-year contract with the French manufacturers in order that they might purchase experience, and it was not to be expected that the contract would be renewed. They feel that during this time they have accomplished their object with a perfect organization and can now do better working independently.

The terms of the contract—it is important to note—permit the

American Locomotive Company to perpetuate in its future models any of the features of the French design used during the life of the contract. On the other hand, the contract required so close a duplication of the French model that certain desirable changes, making it more suited to this country, were prohibited. It will now be possible to make all these adaptations and at the same time retain the design and maintain the high quality.

Relieved from the payment of royalty and free to market its product under its own name and on its own terms, they have been able to make a large reduction in prices, so that now the American Locomotive car will be about the same as the ordinary high-grade American car. The six-cylinder car at \$6,000, the 40-horsepower car at \$5,000, the town car at \$4,500, and a cab at \$3,350 present a fine line of automobiles with the prestige of an old-established company with \$50,000,000 capital.

CARBONIC ACID AS A TIRE INFLATOR.

PARIS, Sept. 10.—Carbonic acid is worthless for inflating pneumatic tires, declares a Michelin expert. In view of a certain revival in the use of this gas for purposes of inflation, careful experiments have been made at the Clermont-Ferrand factory in order to accurately test the length of inflation of tires pumped up with atmospheric air and with carbonic acid gas. Six different air chambers of one, two and three millimeters thickness were inflated, one of each having atmospheric air pumped into it to a pressure of 6.6 pounds, and three others taking carbonic acid to the same extent. They were left under observation for 72 hours, when it was discovered that their degree of inflation was as follows:

Thickness of tube.	Inflated with atmospheric air.	Inflated with carbonic acid gas.
1 millimeter	5.9 pounds.	1.3 pounds.
2 millimeters	6.3 pounds.	1.8 pounds.
3 millimeters	6.4 pounds.	2.3 pounds.

The experiment was made in an atmosphere of 64 to 68 degrees Fahr. A similar experiment with the same initial pressure but with the exterior air at 95 to 102 degrees Fahr. was even more in favor of natural air as a tire inflater, the results being:

Thickness of tube.	Inflated with atmospheric air.	Inflated with carbonic acid gas.
1 millimeter	3.5 pounds.	0 pounds.
2 millimeter	4.8 pounds.	.2 pounds (about)
3 millimeter	5.4 pounds.	.3 to .4 pounds.

EXPORTS SHOW SLIGHT FALLING OFF.

According to the Government reports for July, the number of automobiles shipped abroad by American manufacturers for the seven months of 1908 ending with July is considerably below the number for the corresponding period of 1907. It is worthy of note that, even with this falling off in the number shipped to foreign users, the grade of machines seems to have been of a much higher class, for during the first seven months of 1907 the custom records show that 2,052 machines having a total valuation of \$3,825,969, while for a like period this year only 1,528 machines were sent abroad, but their total valuation of \$3,225,166 is nearly equal to that of 1907. From these figures we are led to infer that the higher classed American product is meeting with increased favor across the water. As regards the automobile trade of foreign makers in this country there seems to be little change in the amount of business they are doing here, so far as the number of machines is concerned, although the figures show a very substantial falling off in their total value, during the first seven months of 1907 the foreign manufacturers imported 559 machines, valued at \$1,827,590, and for the same period this year 558 machines, valued at \$1,170,624. France, as usual, leads the list of foreign countries shipping to this side, with over 400 cars for these seven months, both last year and this.

AUTOMOBILE WAGONS TO CARRY AUTOS.

PARIS, Sept. 10.—Automobiles requiring to be shipped from one end of France to the other need no longer be mounted on an open truck and covered with a tarpaulin if the Paris-Lyons-Méditerranée Railroad is used. This company has just had constructed eighty special covered wagons specially designed for the transportation of automobiles. Entrance is at each end by full hinged doors opening outwards, sliding side doors being also provided for the entrance of persons only. The interior of each wagon is so fitted that the largest or the smallest automobile can be secured in a few minutes, without any possibility of it working loose under the greatest shocks and without any danger of the paintwork being scratched. Movable bars with suitably shaped blocks attached to them fit in grooves ready to be brought to the front and rear of each axle and there secured by stout pins. Heavy leather straps give further security, and rolling is prevented by other attachments to the body of the car.

With the use of these wagons all that will be necessary for the transport of a large car will be to run it to the depot under its power, enter it in the wagon, draw off the gasoline as a precautionary measure, and attach it. No packing whatever is required, and on arrival at destination the automobile needs no more attention than if it were being brought out of the garage. The new railroad wagons will be principally used for the transportation of powerful open and closed cars from Paris to the southern pleasure and health resorts, the travel to which is very heavy the greater portion of the year.

AN EXAMPLE OF HIGH-GRADE BODY WORK.

One of the handsomest, not to say the largest, automobiles in New York City left the shops of Locke & Company, body builders, last week. The chassis is a 50-60-horsepower six-cylinder Renault; its wheelbase is approximately 13 feet, allowing ample accommodation for a roomy seven-passenger body. The two extra seats in the tonneau are fixed and of the bucket type, nearly as wide as those in front; a passage between them gives entrance to the rear seat. The body is finished in a rich, dark blue with cream striping, pleasingly relieved by the "basket work" on the upper panels of the seats. Equipment includes a five-bow folding top and a Huillier flexibly mounted glass wind shield, a type not often seen in this country.

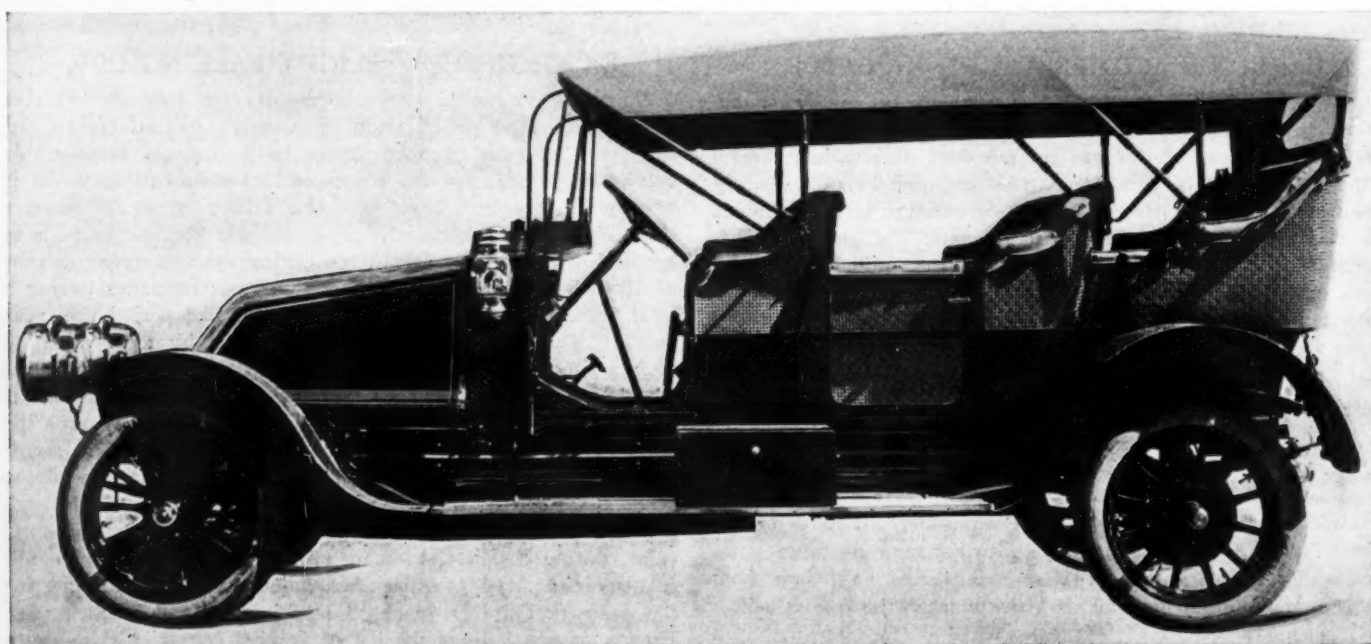
A CALIFORNIA CRUISE OF STEAMERS.

SAN FRANCISCO, Sept. 12.—Forty-three White steamers manned by 260 persons, and under command of Admiral C. A. Hawkins, formed the northern division of the "White Squadron," as it made its first cruise on a recent Sunday to Muir redwoods. The success of the occasion was greater than was anticipated, notwithstanding an occasional call on the tire-repair wagon for assistance, as the roads were very rough in places. The ferry-boat *Ukiah* has been chartered in this city to transport the "steamers" across the bay, where squadron formation was called by Admiral Hawkins. The route taken was over the Bolinas road, and up the creek road, as the former route was not in condition to be traveled. Up the creek to the redwoods, it became a veritable cruise, as the water was up to the hubs of the cars most of the time, on account of the many fords. Anchored in the snug harbor of the Muir redwoods, the hungry officers and their crews partook of the bounteous luncheon which had been prepared for them at Muir Tavern. When luncheon was over, several hours were spent in exploring the redwood canyon, which has lately been acquired by the government.

Most of the steamers were navigated by their owners, many coming from a distance, from Santa Cruz, San Jose, and Oakland to participate. The return cruise was made over the ridge by way of Mill Valley, and the return trip of the *Ukiah* was made with forty-five machines aboard. There was almost every model of White steamer to be seen, from the little back-entrance car to the fine big straight-line body steamers. What speaks most forcibly of the success for the event was the cry to be heard on all sides: "When can we have another cruise?"

The Austrian industrial car contest, under the patronage of the war ministry and chamber of commerce, will take place from October 20 to 31 on a circuit of 800 kilometers for vehicles bearing a load of more than 2,500 kilograms, and 1,000 kilometers for those carrying less. Only internal combustion motors are eligible, and they all have to be fitted with a tank capable of carrying sufficient fuel for the daily stage; neither may their weight, fully laden, exceed 9,000 kilograms.

Many real estate agencies near New York City use automobiles to show prospective customers their lots. But the purchaser is often disenchanted when for the first time he has to walk to the station.



Seven-passenger Body on 50-60-horsepower Six-cylinder Renault—One of the Largest Bodies Ever Built.

ONE-PIECE PRESSED STEEL REAR AXLE.

Among the many new products of the Timken Roller Bearing Company for 1909 is their new one-piece pressed steel tubular power axle, which they hope to put upon the market at an early date. One of the great troubles with the present form of built up axles is that a truss is necessary to take the strains. The Timken Company in manufacturing this new axle have made use



Fig. 1.—Rear view of rear axle, showing absence of protruding parts to catch road dust and mud.

of a special basic open hearth steel of high static resistance so designed that the axle itself will carry the load without the requirements of a truss. Advantage has been taken of the fact that tubular forms give great strength and resistance is dis-



Fig. 2.—Front view of rear axle showing gear carrier, spring bases, and brakes, comprising the complete unit.

tributed proportionally to the points of greatest stress by grading the thickness of the metal so that the heaviest part comes at the spring seats where the strains are greatest and the thinner parts toward the center.

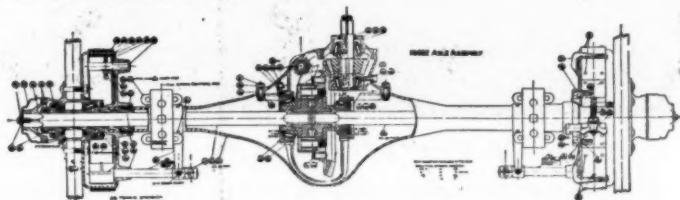


Fig. 3.—Plan view of one-piece rear axle, gear carrier, brakes, and wheels, illustrating method of placing gears.

As the accompanying cuts will show the designer has done away with all sharp curves thus avoiding any sudden angles which sometimes add leverage and increase the liability of shocks at the points of least resistance. Such a design not only

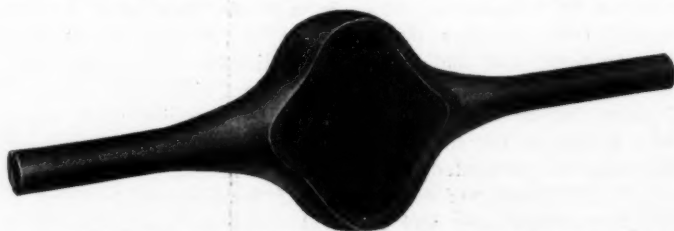
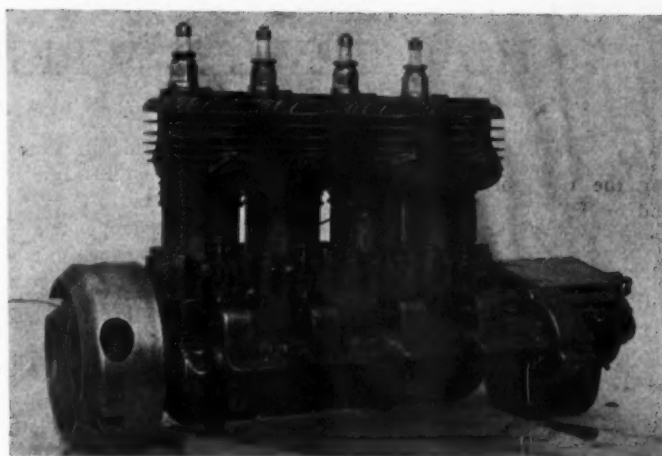


Fig. 4.—One-piece pressed steel rear axle housing.

gives stability but it makes a very clean cut and smooth looking axle, with no extra parts to get loose and easy to clean.

This axle is designed to be used on cars weighing up to 3,000 pounds empty and of 45 H. P. or less.

Supplementary to this new axle, the Timken Company have about completed a new differential gear carrier, torque bar arrangement and improved brake equipment that will shortly make its appearance on the American market.



Inlet Side of Planche Motor, Showing Magneto.

A LIGHT FOUR-CYLINDER BICYCLE MOTOR.

The Motor Car Specialty Company, of Trenton, N. J., has brought out a four-cylinder air-cooled motor, called the "Planche," which they believe is the smallest four-cylinder motor ever manufactured in the United States. It was designed to drive motorcycles, but is suitable for any purpose where a light four-cylinder motor is required. The cylinders are 2 1/16-inch bore by 2 1/4-inch stroke and both cylinders and pistons are finished by grinding. Cooling flanges are cast integral. Both inlet and exhaust valves are mechanically operated, and are on opposite sides of the cylinder; they have nickel-steel heads and carbon-steel stems. The crankshaft is forged of 40-point carbon steel with hardened journals, running in plain cast-iron bearings; the camshafts are also hardened. The motor is fitted with a Simms-Bosch magneto, inverted and driven from the front end of the crankshaft. This model at 2,000 r.p.m. develops about 6 horsepower. The weight, without magneto, is 54 pounds.

SOME MISINFORMING INFORMATION.

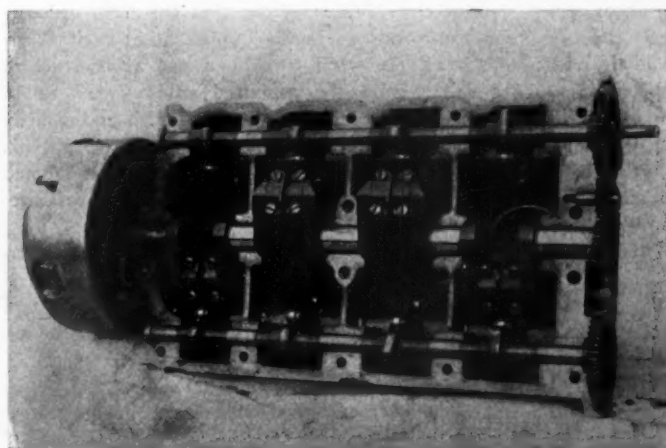
(From Our Press Clippings.)

One of the hardest things to teach a new hand is not to leave the speed gears in the mesh *while the motor is running*.

Don't fill acetylene gas lamps with carbide until they are to be used, as carbide is very susceptible to moisture and slacks readily on exposure to air.

An idea of the utility of the *automobile* may be had from the fact that the average carrier can transport, in a *wheelbarrow*, 150 pounds ten miles a day.

On a good road, the average 2,500-pound car, with a 6 x 7-inch opposed motor, carrying five passengers, should cover seventeen to eighteen miles to the gallon of gasoline.



Bottom View Planche Motor—Lower Half of Case Removed.

HOW ORVILLE WRIGHT MADE HIS FLIGHTS

By E. PERCY NOEL

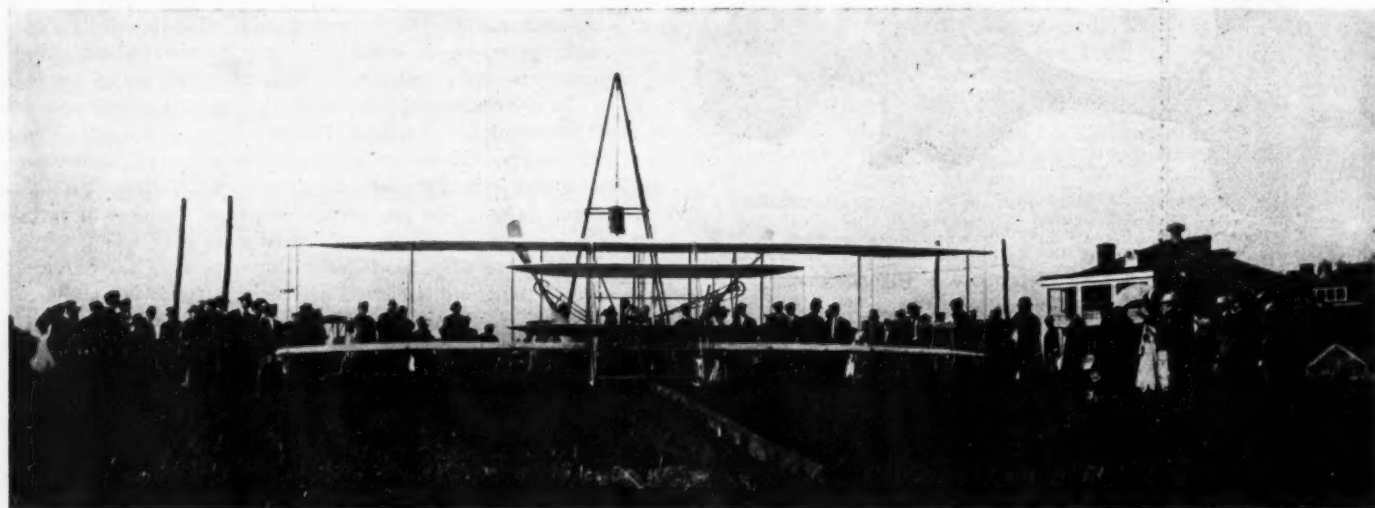
WASHINGTON, D. C., Sept. 14.—It was with an almost audible screech of victory that the great white eagle of the Wright brothers raced directly over the head of Major Fournier, military *attaché* of the French embassy, on September 9. To the hundred or more automobilists whose cars were lined up just off the aeronautic field of the United States government at Fort Myer, Va., it was plain that although the French may claim the earliest practical development of the automobile of the road, the United States stood first in building the true automobile of the sky as embodied in the Wright machine.

A memorable occasion it was—the day that will go down in the world's history, and notably in the long list of achievements of the automobile engine. For, if it was not the day on which the subjugation of the air began, it marks the time when the universe awoke to the fact that man with a motor-driven machine, heavier than the air, can successfully fly through the atmosphere. At this time Orville Wright, the man, and a 30-horsepower four-cylinder twin-screw Wright brothers' aeroplane, the machine,

miles straightaway and return at the rate of 40 miles an hour, and endurance drive of one hour—in each case carrying with him a passenger.

It was with his two-man run that Wright clinched his claims upon aerial success on the memorial ninth. Perhaps he thought he might as well do it all in one day, but it is more probable that this man who is so unassuming in his manner and speech, thought little of the history he was making. This flight, which began shortly before 7 o'clock might have been continued as long as the one that preceded but that darkness came on, with only the golden harvest moon and late twilight to illuminate the field.

On the morning of the record-breaking day Wright went aloft at about half-past eight before a handful of people, mostly his friends. He remained in the air 57 minutes 31 seconds, making 57 large ovals in space. Because of the purely friendly character of his audience, he was easy and comfortable in his seat, and the absolute calm that prevailed made him less and less cautious as he swung around his course. Frequently he waved his hand



Wright Aeroplane on the Experimental Grounds at Fort Myer, Va., Showing the Starting Rail.

made three runs, each of which exceeded all previous true mechanical flight records, and two of which doubled all such records, official or claimed, in the world.

Little wonder, then, that Cabinet members and other high officials, to say nothing of a thousand spectators, felt the thrill of tremendous excitement and declared that they had witnessed the most marvelous sight of their lives, realizing, many for the first time, that aeral transit is practical!

Mere words cannot convey the feeling that the first sight of this capable sky motor produces in the human mind as it skims the air with and against the wind, up, down and around about. When it touches the ground the mounted soldiers are for a minute dazed, the spectators, respectful yet mad with enthusiasm, rush in one big tumbling mass to surround the aviator and his machine. They fight for the touch of his hand. Women become hysterical and even the seasoned men of war and of the press are, as the slang has it, "rattled."

"He will rest on his laurels now," said someone when the hero of the ninth, did not go to the field next day for an early morning flight. But not Wright. In the afternoon and in others following he mounted his apparatus and soon after his machine slid off the starting track to break the record of the day before. And in this way he will continue, rapidly climbing higher in achievement until he is ready to make the official trials before the board of tests of the United States Signal Corps. What he will do then will be insignificant in his estimation; a run of five

to the happy ones below; once he adjusted his cap and even turned to look at the motor a few feet to the right of him. Plainly it was not essential that he tightly clasp the levers—two at his right and one at his left—under favorable conditions. He explained afterward that he could hold the right levers in place with his knee and that the left lever was always held quite securely by a band brake.

Wright had said a few days before that he would not take any chances of breaking his machine until the time came for the official trials, because the aeroplane is the only immediately available one and that it must be delivered on schedule time. But on this morning flight he took great risks. He flew the highest that he had previously taken the machine aloft, rising to a height of 125 feet; afterward he increased it to 250 feet. He made his elongated circles so extended that he passed over rough underbrush, and even the top of the aeroplane hangar.

When it was over and the field telephone was transmitting the news to the city to be flashed over the face of the earth, Wright's mechanic asked him: "Why didn't you stay up an hour?"

"An hour?" asked the aviator. "How long was I up?" And when told, he said: "I thought it was about 40 minutes. Could have stayed an hour as well as not. My eyes hurt me a little, so I thought I would stop."

When he announced that he would make another run in the afternoon at 5 o'clock, the chief servants of the Republic were

notified, and many of them, including the Secretary of War, the Secretary of the Navy and the Secretary of Commerce and Labor, drove out in government automobiles to see the aeroplane. Everyone of them admitted the thrill of the occasion when the machine started off in a businesslike manner and again and again flew directly over them.

THE AUTOMOBILE correspondent stood beside the battle-scarred Secretary of War. "Do you feel a little thrill?" he questioned.

The stolid face reflected a smile as the veteran of war admitted, "Yes, I do. It's wonderful, marvelous!"

The Secretary of War had never seen an aeroplane aloft before. He has never been very enthusiastic about the aerial future.

"Can you see the practicability of it?"

"That's another question—" and just then the white bird with its fusillade of open exhausts that make conversation impossible, flew just 20 feet above our heads. Afterward he stated that he could not see much utility for the apparatus in its present form, but that he could foresee that there was a practical future in development of the basic ideas represented.

Meantime the ungainly thing, that had become that day something beautiful, ran evenly at an altitude of about 75 feet, the steadily-firing motor never missing an explosion until 50 long laps of nearly a mile in average length had been accomplished. The hands of the stop-watches were nearing the hour.

"Give him a cheer when he comes round, and make it good and loud," shouted an officer.

Then the hour elapsed, and the sky motor approached the starting track, and the spectators assembled behind it. As he made his turn a cheer rose so loud that the aviator heard it above the exhaust explosions of his motor, and, releasing the right levers for the first time, he waved his hand repeatedly. The crowd cheered louder than ever and a hundred motor horns joined the enthusiastic chorus. Every lap that Wright added after that the cheering was repeated. When he alighted a few minutes later, almost at the feet of the high officials, his time was 1 hour 2 minutes 15 seconds.

Official time was taken by Augustus Post, secretary of the Aero Club of America, who had never missed an hour at the field while Wright has been there.

"Do you want to go?" asked Wright of Lieut. Frank P. Lahm, soon after the descent.

"I should be delighted," replied the officer.

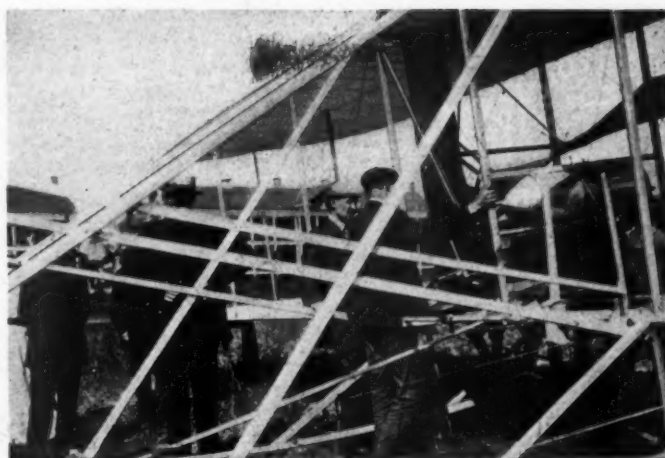
Somehow they wormed their way out of the crowd that was 15 deep around them, and walked half-way down the field. There the lieutenant received his instructions. While these two talked, the machine was again mounted on the starting rail, the weights hauled up in the derrick and all made ready.

Lieut. Lahm climbed into the right-hand seat, nearest the motor, and as he did so his cap struck the cord that is used to shut off the gasoline for stopping the engine. The unexpected stoppage caused some anxiety among the spectators, but it was over in a minute, as the mechanics cranked over again by pulling on the propeller blades. The motor rattled steadily for a few seconds. Then Wright touched the weight trigger and the machine with its two passengers on the seat that measures 28 inches in length by 8 inches wide, slid down the track and shot off at the end, a foot from the ground.

The aeroplane did not immediately rise from this elevation, but continued for several hundred feet, roughly brushing the grasses. Then Wright tilted his forward balancer and all rose to a height of about 15 feet. At this altitude a long turn was made. On the next circuit the machine rose higher from the earth, and finally attained a maximum height of about 40 feet. Approaching night stopped the run after the two men had been 6 minutes 26 seconds aloft, having covered fully 4 1-2 miles.

Wright does not control the motor while in the air, and he did not advance the make-and-break spark from its usual point when alone before taking up a passenger with him. In spite of this the speed of the machine was approximately 36 miles an hour. He believes that by opening up the motor's speed fully he will be able to fly at least at 45 miles an hour.

On the day following, September 10, Wright added three min-



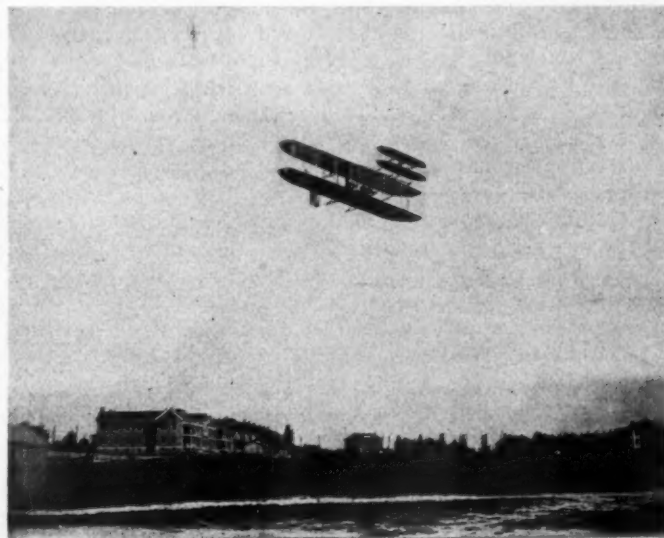
Orville Wright Preparing for Record-breaking Flight.

utes to his time record of the day before. What was more interesting, he rose to a height of fully 200 feet, and at that elevation completed many long ovals. It was the first long demonstration in a stiff breeze and was for that reason important. The anemometer showed a wind speed of not less than nine and as much as ten for the 1 hour 5 minutes and 52 seconds that the machine was in the air.

After the flight two cables were handed to the aviator. One from his brother Wilbur and the other, it is thought, from England. Wright would not allow the latter to be published, but intimated that it was from an amusement manager. The quiet little unassuming hero does not care for that kind of publicity. The cable from Wilbur Wright was in code, except for the last two words—"Très bien."

After the success of the ninth, THE AUTOMOBILE correspondent propounded a hypothetical question: "Now, Mr. Wright, that you have established such remarkable records in America, is it not probable that your brother Wilbur in France will immediately begin to make longer flights?" The aviator smiled and would not answer; but it was not hard to guess why the first great achievement of these men took place in the United States.

On September 10 Wright remained in the air one hour, five minutes 52 seconds; September 11 his time was one hour 10 minutes 24 seconds. On the day following, before a crowd of 5,000 people, many well known, he broke two of his own records. Carrying with him Major Geo. D. Squier, acting chief of the United States Signal Corps, he remained aloft nine minutes six and one-third seconds, traveling at the rate of 38 3/4 miles an hour. Flying alone, he was in the air one hour 14 minutes 25 seconds, making 71 great ovals in the air.



In the Air Making a New World's Record.



Mr. and Mrs. Macfarland and Their Reo in Which They Toured.

LONG before we were the owners of an automobile, it had been one of our great desires to make a thorough trip of New England. When we became autoists, our old ambition was revived. The opportune time came this summer for a comprehensive survey of the impressive grandeur of the White Mountains, and the most pastoral scenery of the Green Mountains. When Saturday, the first day of our vacation, dawned we were ready to start at 6 A. M. for Stockbridge, Mass., a distance of 145 miles. Our route lay via Portchester, Norwalk, Bridgeport, Naugatuck, Waterbury, Winsted, and Great Barrington. Entering Norwalk we had an interesting experience. Mrs. Macfarland and myself rarely care to exceed 15 miles an hour when autoing. This we find insures that health-giving ease and comfort which is the primary object of all our automobiling. Moreover, when we bowl leisurely along we can see and enjoy the scenery.

Unnecessary to Monopolize the Road.

We had begun to climb the steep hill just before entering Westport avenue at about a 15-mile per hour clip, when suddenly our attention was arrested from the rear by an impatient "honk! honk!" We looked back and found that it was a big foreign car belching at a terrific rate. I steered slightly to the right and permitted it to pass us. Presently the burly leviathan lessened its speed in a marked degree, while our little Reo kept on gathering velocity. The road widened and permitted us to repass the bigger car, much to the chagrin of our erstwhile pompous friends. By this time the sporting elements in both Mrs. Macfarland and myself were on their mettle. We vowed to eat no more of their dust. I quickly opened the throttle and advanced the spark, and it was not long before we were a comfortable distance ahead. We did not relish the idea of being approached impatiently from the rear with a "get-off-the-earth" look and act, merely because our car happened to be a little smaller. So we probably exceeded the speed limit a trifle on that hill, not because we were speed-omaniacs, but because, in a measure, we were forced to assert the touring rights, privileges, and courtesies which fellow tourists owe to one another, and particularly where there are ladies.

We arrived at Waterbury, a distance of 77 miles, at 10.30 A. M., where we had our second breakfast. The roads were excellent, barring some long stretches of sand and steep hills near Thomaston and Winsted. Thoroughly refreshed and eager to press forward on our second day after a good night's rest, we headed for Manchester, Vt., a distance of 71 miles, via Lenox, Pittsfield and Williamston. Steep hills and many stiff water-breaks were the incidents of the day's run. These had no terror at all for us, for with the rational wheelbase in our Reo, and its rear seat detached and replaced by a luggage hamper, we swept over the mountain tops with ease, our delight augmented by the

beautiful country and the charms of perfect midsummer weather. It was on this day's run that we saw the Bennington battle monument, which was dedicated August 19, 1891, in commemoration of the victory won by a force of the New Hampshire militia under General Stark against Colonel Haum and a detachment of Burgoyne's army, August 16, 1777.

On this day we encountered a pelting hailstorm near South Shaftsbury, Vt., about 23 miles south of Manchester. Having no top on our car and being protected only by rubber ponchos, which, by the way, proved difficult for Mrs. Macfarland to don without seriously disarranging her hair, we were urged by the gallantly disposed town clerk, who ran out from his veranda, to come in out of the storm. Needless to say we gladly accepted the kindly hospitality. During the lull of the storm we asked a native veteran of the Mexican and

Civil Wars, whose silvery locks indicated at least one hundred rugged Vermont Winters, to take a ride in our car. But he refused, saying, "I am afraid of those gol-durned things, where I never wuz skeered of whistling bullets."

Young New Englanders Enthusiastic Autoists.

That an enthusiastic interest in autoing is borne by the younger generation in this mountain-locked hamlet was shown in the case of a prominent young man of the village. Not long ago he had to undergo an operation for a serious case of appendicitis contrary to his wishes. But there was no alternative. His father promised to do anything for him he chose, upon condition that he would submit to the ordeal. His choice was an automobile. He recovered, and to-day he is the envy of many a neighboring rugged Green Mountain boy.

The storm lasted the greater part of the afternoon, during which time we were regaled by the village gossip. Eventually the storm subsided, after which we continued on our way.

We were accorded uniform courtesy wherever we went. Everywhere the natives evidently were enjoying the fruits of their intelligence, thrift, and industry. Scarcely a hotel but what the progressive and prosperous farmer was well represented. One instance at the Bennington hotel will illustrate the usual run of our experiences. Here we dined at the same table in company with a genial couple, about seventy years young. The husband wore a close-trimmed gray beard, and withal was sleek from the crown of his head to the sole of his feet. He seemed to belong to the old blue-blooded stock that has made the Granite State famous. His wife was one of those motherly dames, who mellow with age and whose eyes, instead of growing dim with advancing age, seem to gain lustre and conviviality. "I beg your pardon," said she to Mrs. Macfarland, with that freedom and ease that is born of true culture and hospitality, "may I ask you whence you hail from and where you are going?" After being duly informed, she then apologetically said, "I was specially interested, for you resemble my grandniece so much." Incidentally, Mrs. Macfarland then, too, noticed that her silvery-haired but blithesome questioner favored her own grand aunt. Then analyzing the radiant physiognomy of the elder lady's sterner half, Mrs. Macfarland thought she traced a strong hint of resemblance between him and myself.

I might go on indefinitely in this manner throughout our entire trip, but time and space forbid. Suffice it to say that a more intelligent and more hospitable folk never lived than those we came in personal contact with among the rugged mountain fastnesses of Maine, New Hampshire and Vermont.

And the wild raspberries and blackberries. Millions upon millions of them we found in endless procession. And what

luscious monsters! Just ripe enough to drop at the slightest touch. Frequently we paused to satisfy our ravenous craving and then with regret we would leave some of the better patches to fade away with the advent of Autumn leaves. To come so close to the big and generous heart of Mother Nature and to revel in her redolent and prodigal bounty certainly should bring joy and health to any sane and healthy man and woman and make him and her a better, nobler and happier American citizen than ever before.

The run from Manchester to Sunapee Lake, N. H., was 75 miles, made up in the good dirt roads and enough steep hills and water bars to lend zest to the tourist who enjoys an occasional sprinkling of the strenuous. Climbing Peru Mountain was exhilarating. The ascent was as a giant beside a pigmy when compared with the famous Jacob's Ladder of the Berkshires.

When reaching Simonsville, near Springfield, Vt., shortly before noon Mrs. Macfarland complained of a severe headache. This she attributed largely to the rich viands which she had partaken of in the various good hostleries at which we had stayed along our route. She longed for a light homemade luncheon. Presently we were directed to a motherly lady, who had a local reputation for dispensing luscious viands for weary and dust-begrimed motorists. Soon we were served a most delicious plain omelet, hot tea, hot biscuits, and wild raspberries and cream, the equal of which we had never relished before. It so thoroughly rejuvenated us that the drive from there to Sunapee Lake proved one of the pleasantest runs of our entire trip, and that is saying a great deal.

An Ever-Changing Panorama of Scenery.

Wednesday we covered the picturesque and mountainous run of 91 miles to Bretton Woods, via Bristol, Plymouth, and Woodstock over the White Mountains. After staying a day at Bretton Woods, we were ready to make our sixth day's run, an 82 mile jaunt to Poland Springs, Me. This we covered in about 5½ hours actual running time. Charmed by the grand view of valleys and mountains, and reveling in the glorious ozone of this popular resort, we yielded to the temptation to remain there Saturday and Sunday. Monday our route lay via Portland, Biddeford, and Portsmouth to New Castle, a distance of 81 miles. Apart from some occasional sandy stretches and some rough stony places, the roads were good through a rolling country. On our seventh day's run, we journeyed along the picturesque New England coast and enjoyed the Atlantic breezes for a stretch of 70 miles, our way leading through Hampton, Newburyport, Beverly, and Lynn, to Boston. Here we spent a week with relations and friends, making various tours within a radius of 75 miles of the Hub. From Boston we bowled happily to Providence and Newport, spending two days at fashion's summer capitol. The next attraction was Narragansett Pier, delightfully situated near the mouth of Narragansett Bay. Here we visited the scene of General Winslow's victory in December, 1675, when, at the head of 1,000 colonists, he defeated the Narragansett Indians, of whom 300 were killed and about 600 captured, while the whites lost 80 killed and 150 wounded.

New London, via Westerly, was our next objective point, the distance of 65 miles being comfortably covered. Having found the driving along the Long Island sound delightful on the day previous, we selected for our last day's run from New England to Mount Vernon, a route that took us through New Haven, Bridgeport, and Norwalk. At Mount Vernon our delightful 1,500-mile motoring tour came to an end,

without the slightest mishap to ourselves or to our car.

I feel specially elated over our successful tour. At the completion of this trip I had driven my car 8,700 miles during the past two seasons. Not one cent has yet been paid for replacements. When I consider that I have negotiated the sandiest, roughest and muddiest roads and climbed the steepest hills in nine different States with such a splendid record of durability and reliability, it certainly testifies eloquently to the scientific design and superior construction of the car. It has proven perfectly adapted to all road and weather conditions. Never has its power and efficiency failed me. This has been largely due to the ample provision which has been made for lubrication—one of the principal sources of the life, power and smooth-running qualities of any car. Its axles are still in as perfect alignment as the day I bought it, while its springs, radiator and motor are likewise in similar condition. Automobiling under these conditions certainly is delightful and invigorating and within the reach of almost every man who now uses a horse and buggy.

Being only an amateur autoist and having accomplished what I have, I feel that others can do likewise. It certainly is worth the attempt. It should inspire many to do more. No steam locomotive has ever shown greater endurance, reliability and efficiency than did our little Reo. Americans may well feel proud of their automobile engineers and builders, who thoroughly know our rough roads and build and design their cars to successfully meet the strenuous conditions.

A SUMMER TRIP WORTHY OF NOTE.

MEMPHIS, TENN., Sept. 14.—What was probably one of the longest trips of the year has just been completed by one of this city's prominent automobile owners—Albert S. Caldwell—and his two friends, J. M. Folkes and Jack Carey. The party on leaving Memphis first proceeded to Nashville, crossing the Cumberland divide and on to Louisville, Pittsburg, Washington, Philadelphia, New York, Boston and many other cities in the East. They started on the homeward journey from the White Mountains, coming by way of Albany, Buffalo and along Lake Erie to Cleveland and Detroit, from there to Indianapolis and Louisville, where the machine, a six-cylinder Pierce, was shipped home by boat.

The Daimler Company's business year at Unterturkheim, closing on March 31, 1908, was hardly as profitable a one as that of 1906-07, and the financial crisis has also left its traces on the firm that manufactures the Mercedes vehicle. The net profit was 477,437 marks as against 1,505,840 marks of the previous year. A dividend of 6 per cent. will once more be paid.



In the Restful Quiet of One of New England's Shady Roads.



Vol. XIX

Thursday, September 17, 1908.

No. 12

THE CLASS JOURNAL COMPANY

Thirty-ninth Street Building, 231-241 West 39th St.
New York City

H. M. SWETLAND, President

EDITORIAL DEPARTMENT

A. G. BATCHELDER, Managing Editor
R. F. KELSEY, Associate Editor C. B. HAYWARD, Engineering Editor
W. F. BRADLEY, Foreign Representative

BUSINESS DEPARTMENT

A. B. SWETLAND, Business Manager
LOUIS R. SMITH FRANK B. BARNETT
W. I. RALPH, 1035 Old South Building, Boston, Mass.
C. H. GURNETT, H. E. WESTERDALE, 1200 Michigan Ave., Chicago, Ill.Cable Address - - - - - Autoland, New York
Long Distance Telephone - - - - - 2046 Bryant, New York

SUBSCRIPTION RATES:

United States and Mexico - - - - - One Year, \$3.00
Other Countries in Postal Union, including Canada - - - - - One Year, 5.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft,
Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—W. H. Smith & Sons, Ltd., 186 Strand, London, W. C., and all their
railroad bookstalls and agencies throughout Great Britain; also in Paris
at 248 Rue de Rivoli.
FRANCE:—L. Baudry de Saunier, offices of "Omnia," 20 Rue Duret, Avenue
de la Grande Armee, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.Entered at New York, N. Y., as second-class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor
Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903,
and the Automobile Magazine (monthly), July, 1907.

Copies printed in 1905	- - - - -	730,000
" " in 1906	- - - - -	791,000
" " in 1907	- - - - -	888,900

ACHIEVEMENTS OF THE WRIGHT BROTHERS.

One day, no one knows how many thousands of years ago, some cave-man or tree-man discovered that a log floating in the river would bear his weight, and that he could move it by paddling with his hands. No telegraph, no printing press spread the story of his achievement abroad; only a group of his tribesfolk looked on, amazed and fearful, as he slowly made his way across the stream. To them it was a miracle. But they did not understand the significance of this first uncertain voyage; their knowledge furnished no scale by which to reckon its importance. Even the next step of development, the dug-out canoe, was beyond the bounds of their imagination.

To-day we accept the *Lusitania* and the *Dreadnaught* with hardly a second thought; and to-day the Wright brothers are flying at Washington and at Le Mans. Man is beginning the conquest of a new element. True, for more than a hundred years it has been possible to ascend into the air by means of balloons; but the limitations of the balloon as a method of transportation have been obvious from the first. The short, gliding flights of Lilienthal may be likened to the first venture of the prehistoric discoverer upon the floating log. But for his untimely death, Lilienthal might also have made the application of mechanical power; as it was, the Wrights received the benefit of his experience, and to them belongs the credit

of building the first real flying machine. The thousands of curious spectators who daily flock to see them witness the beginnings of a new period in human progress.

The most sceptical cannot doubt that the Wright machine really solves the problem of mechanical flight. A machine that has repeatedly sustained itself and an operator at a height of from 100 to 200 feet for an hour must be regarded as more than a mere toy. Moreover, it is strong, reliable and marvelously simple. So far, the only objection that can be found is the extraordinary degree of skill necessary to operate it successfully. The aviator must cultivate a sense of equilibrium many times more delicate than that of a bicyclist, and must control almost instantaneously a complicated system of levers. Birds balance themselves instinctively in the most abrupt and violent air currents; man can acquire this ability only imperfectly. Some automatic device, then, must be invented to take care of this function. When this is done—a trifle compared to difficulties already overcome—the aeroplane will be a practical conveyance.

As to the future of the flying machine, it is useless to speculate. Apparently there is no reason why it should not be capable of as great development as the cave-man's floating log, although this must of course be the work of many centuries. But, however rude and clumsy the present machines may appear in the light of future developments, they have nevertheless demonstrated beyond cavil the possibility of mechanical flight, and the Wright brothers deserve the credit therefor. Their names will look well beside those of many other American inventors who have worked for the good of all mankind.



IMPORTANCE OF MOTOR TIMING.

Familiarity may well be said to breed respect where the internal combustion motor is concerned, for the more one comes to know of it the more one must marvel at the adverse conditions under which it will continue to operate. Of these, probably the most common is faulty timing, and experience with a large number of motors serves to bring to light the fact that the possible range of valve operation and ignition is extremely wide indeed. That the motor may be made to work at all at either of the extremes of this range seems impossible at first sight, and herein lies the anomaly, as the two motors representing the greatest difference may often be found to give an equally satisfactory performance.

It will be apparent that the proper opening and closing of the valves is of vital importance to the operation of the four-cycle motor, as with the present high speeds now favored, it has at best a very small fraction of a second in which to complete each one of the phases of its cycle and any overlapping one way or another is bound to derange it. This was a matter that came in for all too little attention in earlier days, but its importance has become better realized since and it is now customary to index the flywheel, so that the timing of the valve mechanism may not only be checked up, when trouble due to this cause is suspected, but so that it may also be corrected when it is no longer what the designer intended it should be. Probably faulty timing is accountable for a very large percentage of the ills to which old motors are heir, and if more attention were given to this essential by the average repairman it would be an advantage to all concerned.

A. A. A. AND A. C. A. REACH HARMONIOUS AGREEMENT

COMMITTEES named by the American Automobile Association and Automobile Club of America to effect a settlement of their differences reached a basis of agreement several days ago, and the board of governors of the Automobile Club of America ratified the agreement at its last formal meeting. On Monday of this week the executive committee of the A. A. A. met to consider the plan, but failing to reach an agreement adjourned until Wednesday. After a protracted meeting the committee formally ratified the agreement, and the understanding arrived at formally disposes of the controversy and establishes friendly relations between the two bodies. Secretary F. H. Elliott of the American Automobile Association has issued the following official statement covering the main points:

It is agreed that the Automobile Club of America is the only American member of the International Association of Recognized

Automobile Clubs, and that it is and shall be the only authority in America for the drafting of rules affecting and for the granting of sanctions for international races, and for the regulation of such races in this country. On the other hand, the matter of the sanction of and the formulation of rules for local and national races is agreed to be, as heretofore, in the sole power and jurisdiction of the association. The two bodies agree to cooperate with each other in making the Vanderbilt Cup race and the Savannah Grand Prize race successes. After the races of this year the two cups are to be deeded to an independent racing association, and are to be contested for annually, the Grand Prize Cup as the International trophy and the Vanderbilt Cup as the National trophy. It is also agreed that the club shall not encourage other clubs to withdraw from the American Automobile Association.

The essential points at issue between the two organizations have thus been settled, and their cooperation in the future in all matters relating to the sport of automobile racing is assured.

PENNSYLVANIANS, WELL ORGANIZED, TO AID AUTOING

PHILADELPHIA, Sept. 14.—Upwards of a score of automobile enthusiasts, including the executive committee of the Pennsylvania Motor Federation and the presidents of several of the clubs from towns in the eastern section of the State, gathered at the handsome home of the Automobile Club of Germantown last Friday morning to discuss ways and means of improving automobilizing conditions in the Keystone State. It had been the original idea to wind up the business of the meeting in two or three hours, but the session developed so much of importance to the welfare of motorists generally that the motion to adjourn was not put till nightfall, and then the Germantown hosts insisted on all hands "staying to tea," although a bountiful lunch had been set for the guests at midday. As a result the meeting continued informally well into the night.

Besides Robert P. Hooper, of this City; Vice-President Peter A. Meixel, of Wilkes-Barre, and Secretary Paul A. Wolff, of Pittsburgh, there were present: State Senator Frederick A. Godcharles, of Milton; President Joseph A. Weeks, of the Automobile Club of Delaware County; President Powell Evans, of the Automobile Club of Philadelphia; President P. D. Folwell, of the Quaker City Motor Club; President John Burd, of the Delaware State Automobile Association; John A. Wilson, Franklin; Martin Kinports, Lancaster; Dr. J. F. Kleindinst, York; Dr. W. H. Stephens and Lyman H. Howe, Wilkes-Barre; J. Madison Porter, Easton; John G. Kugler, Pottstown; John H. Rex, Norristown; Joseph Bancroft, Wilmington, Del., and S. Boyer Davis, L. P. Baekey, chairman of the federation's committee of publicity; C. H. Wheeler, Mark B. Reeves, Stephen B.

Ferguson and a dozen other Philadelphians were in attendance.

President Hooper's report was especially strong in its insistence that something should be done to keep the scorchers and road-hog automobilists within bounds, and he urged that the federation take drastic action on those who use highways as race courses.

Another feature of President Hooper's report—the necessity of increasing the membership—brought immediate action. After a thorough discussion of the matter the president was authorized to appoint a committee to organize automobile clubs in all sections of the State where there are a sufficient number of motorists to warrant such a course. Secretary Paul A. Wolff, of Pittsburgh, was named as chairman of this committee, which was ordered to get to work at once. One would imagine from the foregoing action that the recruiting work of the federation was lagging. Such is not the case, for immediately following the appointment of the committee no less than eight new automobile associations were admitted to membership. They are: Monroe County Automobile Association, Automobile Club of Lawrence County, Johnstown Automobile Club, Automobile Association of Scranton, Automobile Club of Franklin, York County Automobile Club, Pottstown Automobile Club and the Oil City Automobile Club. These additions bring the total number of organizations in the federation above the thirty mark.

After lunch S. Boyer Davis, of the legal committee of the Automobile Club of Philadelphia, read the rough drafts of a new State automobile law and a proposed new measure to govern the building and maintenance of roads, to be presented at the next meeting of the Legislature at Harrisburg in January.

AUTO ENGINEERS MEET IN CLEVELAND THIS WEEK

CLEVELAND, Sept. 14.—The Society of Automobile Engineers is to meet at Cleveland Thursday next for its third quarterly meeting of the present year, and the prospects are that there will be quite a number of members in attendance, as the strength of the society in the Middle West is rapidly on the increase. The morning of the first day, Friday, will be devoted to visiting a number of the automobile manufacturing plants which give Cleveland its important position in the industry, among them being the Stearns, White, Winton and Peerless, as well as some of the parts-making plants, such as that of the Hydraulic Pressed Steel Company.

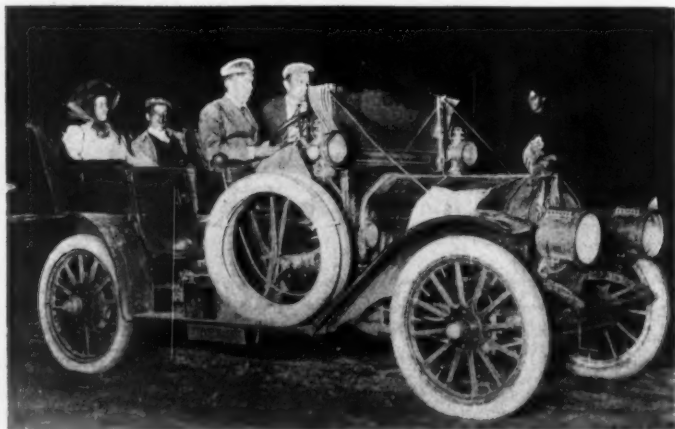
The business meeting will be opened at the Hollenden after lunch and will be followed by the technical sessions, the latter also being continued after dinner in the evening. Saturday morning a special train will be boarded at the Union Depot for

the trip to Akron, where the morning will be spent in making visits of inspection to the plants of the Goodrich and Diamond rubber companies, the society being the guest of the latter at a lunch to be held at the Akron Country Club. Following this the engineers will go to Canton, where they will inspect the plant of the Timken Roller-Bearing Axle Company as guests of the latter.

Arrangements are in charge of a local committee consisting of James G. Sterling, chief engineer of the Stearns company; F. B. Stearns, Harold B. Anderson, chief engineer of the Winton company, and H. W. Alden, of the Timken company, Canton. The papers scheduled for the meeting are: "The Limitations of the Universal Joint," by H. Vanderbeek; "What Carbon Does to Automobile Steel," by Thomas J. Fay, president of the society, and "What is the Best Timing?" by Louis Lacoïn, a translation from the French of *Omnia*, by Charles B. Hayward.

EIGHT OUT OF FIFTEEN PERFECT IN OHIO RUN

TOLEDO, Sept. 12.—Toledo's first endurance run, organized and carried to a successful close under the auspices of the *Toledo Times*, the Toledo Automobile Club, and local automobile dealers, ended Thursday evening of this week. Out of fifteen cars which made the run, eight finished with perfect scores, with the probability that another perfect score will be added to the list



Mora Confetti Car Leaving Columbus Second Day.

after the matter has been taken up by the technical board of the A. A. A.

The route of the run consisted of approximately 600 miles, roughly of triangular form. Starting from Toledo, the pilot car steered through Findlay and Marion to Columbus, which consisted of the first leg. The second day's run lay from Columbus, through Mansfield, Wooster and Akron to Cleveland, and the third and closing day comprised a circuitous route from Cleveland to Toledo. Lack of rain made the road fearfully dusty, and most of the penalties imposed were due to accidents or delays occasioned by dust and dirt playing havoc with the machinery. Nor was the route selected without idea or thought for the behavior of cars on steep and difficult hills. Few parts of Ohio contain more difficult hills for climbing than Holmes County, through a part of which the route lay. Luckily, however, no serious disasters resulted, although a few mishaps served to show the metal of the drivers.

The entrants, seventeen in number, two of which withdrew before the race started, were divided into two classes, amateurs and professionals, there being two of the former and thirteen of the latter. Of the professionals, twelve finished, the Maxwell, driven by Weger, being withdrawn, and of the amateurs, one, the Stoddard-Dayton, driven by Spieker, having fallen by the wayside on the first day's run through the loss of a wheel, occasioned by colliding with a farmer's wagon.

The result of the run as it stands at present is as follows:

Car.	Driver.	Standing.
Mora	Adams	1,000
Jackson	Schelfter	1,000
Jackson	Paxon	1,000
Brush	Huss	1,000
Reo	Adams	1,000
White	Phillips	1,000
Oldsmobile	Auble	1,000
Oldsmobile	Torgler	1,000
Mitchell	McIntyre	973
Chalmers-Detroit	Gamble	973
Maxwell Model H 2-cylinder	Bliesdale	705
Maxwell Model D 4-cylinder	Kelsey	542
Stoddard-Dayton	Atwood	No decision.

Of the standing, it may be said that possibly some changes will be made by the A. A. A. board, as certain features are to be referred to it for final decision; for example, the Stoddard-Dayton, driven by Atwood. It is reasonably certain that when this car was left in a Columbus garage for the night it was in perfect condition, but it was found to be damaged in the morning when it came to checking out, the damage, it is alleged, being due to

careless handling on the part of the garage attaches. There is a disposition on the part of the officials of this run to allow Mr. Atwood a perfect score, in so far as his trouble in that respect is concerned.

Of the other losses, Kelsey was given on the first day 137 points, by reason of loss of time spent working over gasoline tubes which had become clogged with dirt. On the second day he lost 132 points for spark plug trouble. McIntyre lost 27 points for the same reason. Bliesdale lost 295 points when his steering gear rod broke, as the result of hitting a large boulder. Weger was here entirely eliminated, by reason of spark trouble which caused his engine to overheat. On the third day Gamble lost 27 points for running into Sandusky a few minutes behind time, and Kelsey ran into his third dose of trouble by losing 189 points for a broken spring.

In point of interest and endurance, the second day was undoubtedly the best test of the run and brought out several notable incidents as the result. The trouble at Columbus, mention of which has been made, caused Atwood to leave the city a long time after schedule, with temporary repairs which allowed him to only use high speed gears, and this over that part of the trip which had been selected on account of the high and steep hills. Hill after hill was encountered and climbed in this unusual way, and Mr. Atwood reached Cleveland late in the evening.

Another incident happened to Bliesdale while going through the Holmes County hills. Descending one, his car skidded, and in so doing struck a stone, which carried away the steering arm. Apparently helpless, Bliesdale surmounted the situation by cutting a young tree with his pocket knife, fitting it to take the place of the broken part, and finishing the rest of the trip with this as a steering arm.

By reason of finishing with a perfect score, E. R. Torgler, of this city, wins the handsome cup set up for the best amateur record by the *Toledo Times*. Mr. Torgler's work was such as to call forth much admiration and the opinion from his fellow-sportsmen that he ought to be in the professional class. As mementos, the committee having it in charge will probably pro-



Kelsey and His Maxwell Making Up Lost Time.

vide some kind of silver badges or medals, although the exact nature of which has not yet been determined.

The officials likewise won the entire confidence and appreciation of the entrants by the just and reasonable decisions and fairness in all particulars. R. K. Davis, of the Maxwell-Briscoe-McCloud Company, of Detroit, was referee, and P. W. Eigner, of the Pope-Waverly Company, Indianapolis; H. H. Howard, of the Cleveland *Plain Dealer*, and M. M. Norton, of the Toledo office of the Goodyear Tire & Rubber Company, were the assisting officials. A Pope-Toledo car piloted the run, the rules governing which were customary to such events.

HOW THE CLUBS ARE PUSHING FALL WORK

A. C. OF CALIFORNIA IS BUSY SIGN-POSTING.

SAN FRANCISCO, Sept. 12.—The Automobile Club of California, true to its promises of a few months ago, has commenced the splendid work of what will be a monument to their organization, the erection of sign-posts. After several months of careful study and investigation of different methods of such an achievement, maps have been completed, posts made and signs



California Club Officials Placing the First Sign Post.

enameled and yesterday Samuel G. Buckbee, president of the club, and L. P. Lowe, chairman of the executive committee and president of the California State Automobile Association, superintended the placing of the first post. A large gathering of local enthusiasts assembled at the scene, which was located at the corner of Nineteenth avenue and Parkside boulevard, to witness the event, and to express their appreciation for the great good that will be forthcoming. The posts are iron, and are substantially sunk in the ground about two feet deep, in cement foundations. Through the bottom of the posts, set in the cement, are twelve-inch iron rods.

The club will continue the erection of signs until the country is well-posted north of the section which is being ably taken care of by the Automobile Club of Southern California. Then, work will be taken up on the roads leading out of Sausalito, Tiburon and Oakland, until the entire State is posted. Routes have been laid out as far as Lake Tahoe. Hearty congratulations were extended to President Buckbee and Chairman Lowe, to be conveyed to the members of the club, on the commencement of this good work, and there is little doubt but that now that the ball has started to roll, the Automobile Club of California will receive strong co-operation from the other local automobile organizations and enthusiasts.

SUCCESS OF KANSAS ENDURANCE RUN ASSURED.

KANSAS CITY, Mo., Sept. 14.—Every indication now points to the success of the fall endurance run of the Automobile Club, of Kansas City, which starts Saturday morning, Sept. 19, from Penn Valley Park for Oklahoma City via Emporia and Wichita, returning to this city via Guthrie and Winfield. The finish will be in front of the *Star* office on Grand Avenue, as this paper has offered a cup to the winner. The total mileage will foot up to over 920 miles, and it is fully expected that this run will prove as successful as similar tours have in the East. Indications are that about forty machines will start, and, under the comparatively lenient rules that have been made, more than half of the starters should finish with perfect scores. It was at first proposed to have a strict system of penalization, but this was voted down, and in its present form the tour should be enjoyable as well as instructive to every one of the participants.

ARKANSANS WILL ORGANIZE ANOTHER CLUB.

HOT SPRINGS, ARK., Sept. 14.—Auto enthusiasts of this city have decided that it will be to their advantage to organize, and to accomplish their purpose they have called a meeting of all those interested and propose to form a club under the auspices of the American Automobile Association. R. M. Baker, from Little Rock, will be present and assist in the organization. Interest in automobiles is rapidly growing in this part of the country, and the club expects to reach the hundred mark next year.

HARRISBURGERS ARE BUSY SIGN-BOARDING.

HARRISBURG, PA., Sept. 14.—The Motor Club of Harrisburg will hold its annual fall race meet, Saturday next, on the Middletown track, with one of the largest entry lists in its history.

The club is now placing signboards on all surrounding roads within fifty miles and making a special effort to show the way from the Capital City of Pennsylvania to Gettysburg. The club has appropriated \$200 for signboard work.

Arrangements are already under way for the annual endurance run of the club, which will be held next May, with the night control likely to be established in Wilkes-Barre or Scranton. The run promises to be one of the most severe that has ever been held in Pennsylvania.

SPECTATORS NUMEROUS; PARTICIPANTS FEW.

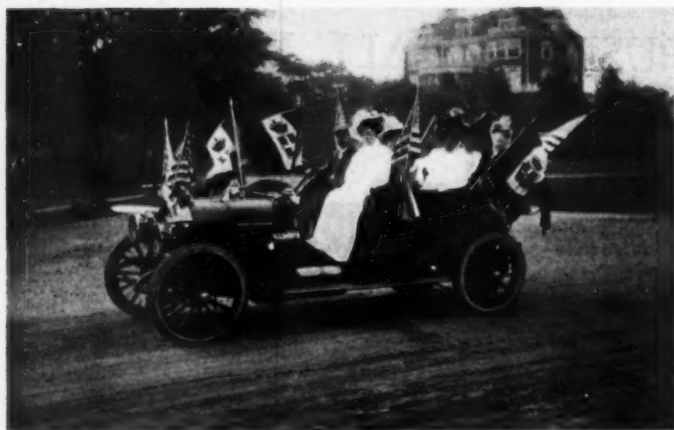
BUFFALO, Sept. 14.—Upwards of 75,000 witnessed the annual decorated automobile parade of the Automobile Club of Buffalo last Thursday evening. Both sides of Main street were crowded for three miles, and considerable disappointment was expressed because there were only about 23 cars in line, as against 185 last year. There were 29 prizes hung up, but not enough cars were entered to carry off each a prize. One man was at a hotel and seeing the cars ready to start, sized up the proposition as an easy one and went to his garage where he stuck two flags on his



Secretary Lewis of Buffalo Club in Prize-winning Car.

car and joined the procession. He carried off the seventeenth prize. Three hundred automobiles lined up along the curbs, reviewing the parade, and the club management could not understand why these were not in the parade instead of reviewing it.

Secretary Dai H. Lewis, of the local club, carried off first prize with a crescent decorated in pampas grass and flowers. President F. B. Hower led the parade and was awarded second prize.



The Greenwich Auto Carnival—Mrs. Hamilton's Car.

GREENWICH SOCIETY AUTO CARNIVAL.

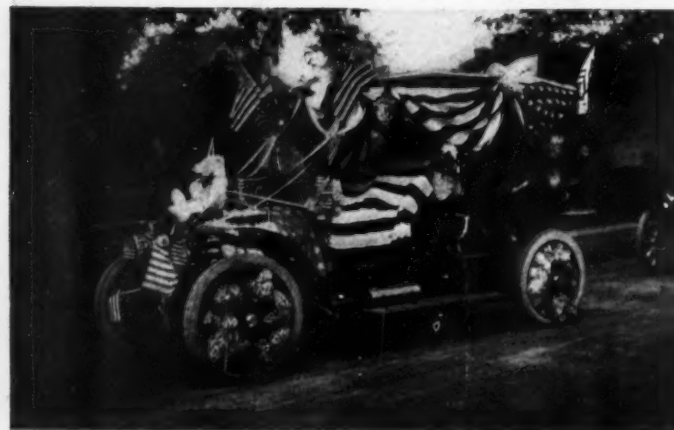
GREENWICH, CONN., Sept. 14.—On Saturday of last week this place indulged in an all-day automobile carnival, which was participated in by many New Yorkers. The committee, composed of George A. Helm, A. C. Hencken, Col. R. B. Baker, B. E. Kelley, George Lowther, Edgar Marston, P. D. Adams, E. B. Foster and E. C. Covers, did all in its power to make the day a memorable one. To this end it arranged for a series of races in the morning, over a mile course, in which sixteen cars competed.

In the class C event, a Packard, owned by C. P. Geddes, won from a field of six cars, in the excellent time of 0:44 1/5, with G. A. Helm's Simplex a close second in 0:44 3/5. In class B a 24-horsepower Packard, owned by E. C. Converse, tied with C. A. Moore's 35-horsepower Fiat, at 0:36: 2-7. In the second trial the Packard could not better its time, but the Fiat made the mile in 54 seconds flat. In a trial against time Paul Rainier's 70-horsepower Mercedes did 0:46 4-5 for the mile, Joseph Mechaley 0:50 1-2, and A. W. Hamilton 0:52 4-5. In the runabout class the two Buicks, owned by J. A. Bullard, won both the cups.

The afternoon was devoted to a parade, in which one hundred decorated cars took part. Headed by a brass band, in a "rubber-neck" wagon, the procession passed through Field Point, Belle Haven, Edgewood Park, Rock Ridge, Riverside and Sound Beach, passing all the principal club houses. At the casino twelve cups for the morning contests and decorations were awarded.

A. C. A. CALLS OFF ITS "SCENIC TOUR."

Owing to notification having been received from several hotels on the proposed route that they will be closed before the date set for the proposed "Scenic Tour," the Automobile Club of America has decided to abandon the run this Autumn and follow the course laid out on its run next Spring.



E. L. Marsten's Patriotically Decorated Car.

SOME SELDEN LITIGATION NEARER HOME.

Following the meeting of the managers of the Association of Licensed Automobile Manufacturers, held in New York City early in the month, a report has grown that the session was not devoted entirely to the consideration of the ordinary routine business of the association, but that drastic action was taken with regard to two members who have been delinquent in their royalty payments. These are the Olds and Buick companies, and it is said that they have made no payments for nine months. Also that an action will be instituted to cancel the license of the Olds Motor Works, which is one of the original founders of the association, a similar move apparently not being contemplated in the case of the Buick at present. That there is some foundation for the report seems evident from the omission of the two concerns in question from the space allotments for the Garden show next Winter. When seen regarding the story Assistant-General Manager Chalfant said "There's a little truth and a great deal of fiction in it," but refrained from further comment.

CONNECTICUT CLUBS ON RIGHT TRACK.

HARTFORD, CONN., Sept. 14.—The Connecticut Automobile Association through the recently organized Torrington Club has gained 20 more members. The more the merrier, for they will all be needed this Winter. A certain antagonistic faction has been keeping count of every automobile muddle that has happened this season for presentation to the lawmakers this Winter. However, the recent appeal of the Automobile Club of Hartford and of the State Association to automobile owners to respect the Connecticut law has not been without its good results. A careful survey of the situation reveals the fact that where there is opposition the party in question usually has a grievance, caused in many instances by the indiscretion of some lawless chap.

24-HOUR RUN OF BAY STATERS.

BOSTON, Sept. 12.—The touring committee of the Bay State Automobile Association, which has charge of the twenty-four hour Bretton Woods endurance run to be held September 23 and 24, went over the course a few days ago and as a result of its trip has announced some important changes. The committee found the roads in bad condition, so bad in fact that it decided that it would be unwise to send the cars through the mountains in a contest at night as originally proposed. Therefore instead of starting from Boston at ten o'clock in the morning, as previously announced, they will start at ten o'clock at night.

Another important change intended to make the contest safer is the use of controls at intermediate points, as well as observers and a pace maker. The pace making car will be accompanied by a member of the committee and will not be driven faster than the legal limit. Passing the pace maker disqualifies a contesting car. There will be controls at the start, at Rochester, N. H., at Bretton Woods, the turning point, and at Concord, N. H. on the way back, with a final control at Boston. Penalties will be inflicted for arrival at controls ahead of or behind time. The course is through Lynn and Salem to Newburyport, Portsmouth, Rochester, the Ossipees, Intervale, Crawford Notch to Bretton Woods, where an hour's stop will be made. On the return trip the cars will pass through Bethlehem, Franconia, Profile, Plymouth, Concord, Manchester, Nashua and Lowell.

NEW JERSEY A. C. SUMMONS E. R. THOMAS.

NEWARK, N. J., Sept. 21.—The trustees of the New Jersey Automobile and Motor Club at their last meeting passed a resolution censuring E. Russell Thomas, the New York banker, for his reckless driving, which resulted in the accident at Long Branch August 14. Continuing, the resolution summoned Mr. Thomas to appear before the board on the evening of October 5 to show reason why he should not be expelled from the club. Mr. Thomas is still confined in the hospital.



POSTER FOR THE PALACE SHOW.

The show committee of the American Motor Car Manufacturers' Association has made its selection of the pictorial posters for the Ninth International Automobile Show at Grand Central Palace, New York City, which opens on New Year's eve. It consists of a five-color drawing on big twenty-four sheet poster of a large red car shooting through an imaginary sky, leaving behind a trail of lurid yellow, giving the poster an unusual amount of life and action. On the yellow tail of the comet are printed in red the words Ninth International Automobile Show. The contract has been given to Seiter & Kappes to produce this as soon as possible. Besides this large poster the committee has artists at work on a smaller one to be in seven colors.

POPE REORGANIZATION WELL UNDER WAY.

HARTFORD, CONN., Sept. 14.—According to present indications, it now appears that the reorganization of the Pope Manufacturing Company will be consummated by November 1. The report of the receivers for August, recently filed with the Superior Court, shows the cash receipts to have been \$54,943.66, disbursements \$66,776.30, and the sales \$43,041.12 during that month. To quote Albert L. Pope, one of the receivers: "The plan of reorganization is now assured of success and it will be completed within a very short time." The final proceeding of the receivers will be to apply to the courts for authority to sell the plant to the committee of reorganization.

ANNUAL MEETING YORK MOTOR CAR COMPANY.

YORK, PA., Sept. 14.—At the annual meeting of the York Motor Car Company, builders of the Pullman car, the stockholders elected the following officers: President, S. E. Bailey, Philadelphia; vice-president, T. C. O'Connor, New York; secretary and treasurer, Oscar Stevenson, New York; general manager, J. A. Kline, York, Pa. In addition to the above, the following stockholders were present at the meeting: J. C. Schutte, Lancaster; W. F. Lebzetter, Lancaster; John Smith, Lewiston, Me.; A. W. Sechrist, J. E. Crimins and Geo. F. Ryan, of York.

That the automobile trade is a good one was again evinced by the fact that the company was able to declare a 6 per cent. dividend on the \$100,000 capitalization. That the business should be able to pay such a large dividend is a source of pride to the stockholders, who attribute the company's success to the efforts of General Manager J. A. Kline to produce a car suited to the public, and the ability of Sales Manager H. R. Averill to sell them. The Pullman line for 1909 has not yet been announced, but the cars which met with such favor this year will probably be continued with little change during the coming season.

HARTFORD TIRE BRANCH MANAGERS CONFER.

HARTFORD, CONN., Sept. 14.—During the early part of the week there was a three-day conference of all the branch managers and field representatives of the Hartford Rubber Works Company, in Hartford. They were all on hand Saturday, and Sunday were taken to New Haven and treated to a typical Connecticut shore dinner by Justus D. Anderson, president of the company. The party included M. C. Stokes, W. H. Reed, Vice-President H. E. Field, Treasurer Henry Plough and J. P. Krough. Two shifts of men have been constantly employed since April 1, and the branch managers have come to familiarize themselves with the plant and its workings. Those attending the conference from out of town were: C. H. Kenyon and A. H. Lowe, of Buffalo; H. F. Kesser, W. Barnes, E. H. Johnson and F. W. Culver, Philadelphia; E. S. Roe, E. H. Fahy, Harry Snyder, A. D. Creedon and W. R. Brown, New York City; T. H. Wilkinson, Los Angeles; W. H. Bell, D. W. Shattuck, W. B. Powell, H. E. Smith, R. Sillies, J. F. Kerner and G. R. Noble, Chicago; C. Langmaid, S. D. Niles, W. P. Barth, Boston; H. C. Severence, J. J. Tompkins, Detroit, and H. P. Goodale, H. C. McIntosh, Cleveland.

CHALMERS-DETROIT AGENTS GIVE A JOY RIDE.

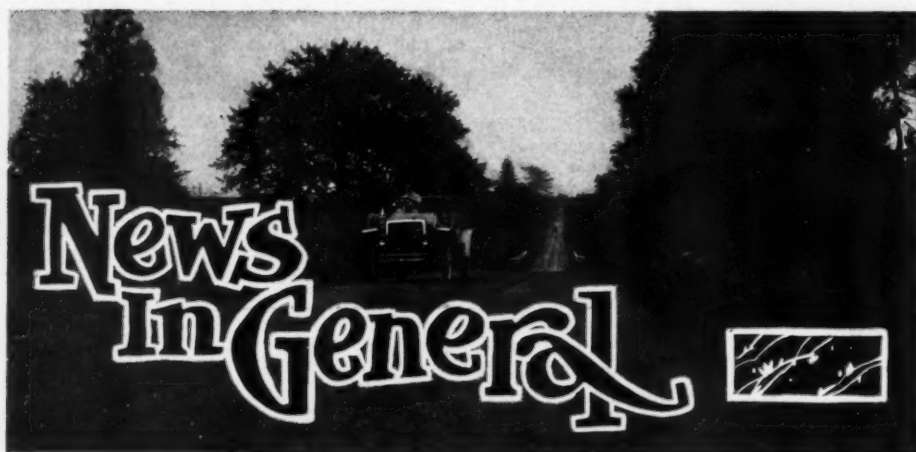
The Chalmers-Detroit was very happily and hospitably introduced to the New York newspaper men by President Page and General Manager Percy Owen, of Carl H. Page & Company, on Wednesday of last week. This metropolitan "coming out party" of the Chalmers-Detroit took the form of a joy ride with a luncheon as a wind-up. Seven cars made up of a Thomas "40," a "30" runabout and five "30" touring cars carried the thirty odd guests. The caravan ran out Broadway and over the boulevards in the neighborhood of Van Cortlandt Park, winding up the twenty mile run at the Abbey, a resort overlooking the Hudson, where luncheon was served without the boredom of speech-making, beyond a brief exchange of jollies between hosts and guests. After lunch the scribes spent a couple of hours very pleasantly on the lawn before they started on the jaunt home. The Chalmers-Detroit made good in the demonstration.

SELDEN PATENT PAYMENTS SMALL IN AUGUST.

HARTFORD, CONN., Sept. 14.—The report of the business done by the Electric Vehicle Company during the month of August has just been filed. It shows cash sales of \$20,231 and purchases of \$6,866.66. Of the cash receipts but \$143.71 is credited to the Selden patent. The disbursements were \$45,483.21, of which \$28,002 was paid George B. Selden; cash on hand, \$263,900.77.



Goodrich Army of Branch Managers, Salesmen and General Representatives. These were gathered recently at Akron, O., when the B. F. Goodrich Rubber Company had its meeting, at which the policy for the coming year, reduction of prices and other matters of interest were discussed and decided upon.



White Steamer Trying Out a Stretch of the Vanderbilt Cup Course.

Stewart Speedometer Announcement.

—The Stewart & Clark Manufacturing Company has been "sitting up nights with its eye on the 1909 season," according to its own admission, and promises one of the best propositions ever made in the accessory industry. No outsiders have as yet been let into the secret, but it will be made public within a few days. The Stewart & Clark Company has been specializing in flexible shafts for thirty years and operates what is claimed to be the largest factory in the world devoted to this line, that of the Chicago Flexible Shaft Company. Another exclusive feature of the 1909 line will, of course, be the Stewart swivel joint. The popularity of this instrument is attested by the enormously increased output during the last season; even in England it found immediate favor and became at once a dangerous competitor to the home product. Perhaps part of this success may be due to the five-year ironclad guarantee which has from the first covered all Stewart instruments.

Factory Dining Room.—The Geo. N. Pierce Company, of Buffalo, has put in operation a plan which it says is working admirably. On the top floor of the new office building the company has provided a dining room which has the capacity for seating 800 people at once. The workmen reach this room by passing through a tunnel from the shops and an elevator to the top floor. A large kitchen and ample help has been provided, and the men secure their dinner for a nominal sum with much less trouble than before. The officials of the company have a clubroom on the second floor of the building, where they gather for their midday meal. On the second floor will also be found light and roomy offices, reception room, library and other rooms. The basement has been fitted up with locker rooms and wash rooms for the men.

The Pope-Waverly Makes a Record.

At the Indianapolis factory of the Pope-Waverly Company recently a test was wanted on one of the stock batteries for mileage and general service. A battery was installed in a stock car, Model 70B, and an office man was sent out with orders to run it down. He was given a definite route, selected for its average condition, and started from the factory at 1 o'clock. On his return at closing time he had covered 62 miles that day. The car was locked up where no one could meddle with it during the night, and the next morning he was again started out. When he next showed up

he had covered a total of 142 miles and the car was still running smoothly, seemingly capable of at least five miles more.

Largest Industry in Syracuse.—The automobile business in Syracuse has increased so rapidly in the past few years that now the largest single industry in the city is the H. H. Franklin Manufacturing Company, having done a business of over \$4,000,000 during the year ending Sept. 1. Of this amount brought to Syracuse by the Franklin Company a goodly percentage of it has been placed in circulation in wages to the 1,500 employees. What this does for the merchants of Syracuse is only one example of what the automobile industry is doing throughout the country for business in general, as this record of the Franklin is but one instance of many to be found in the American auto trade.

Pope Indianapolis Plant Sold.—No objection having been raised to the proposed sale of the Indianapolis plant of the Pope Motor Car Company, where the Pope Waverley electric vehicles have been manufactured, Vice Chancellor Howell, sitting at Newark, N. J., granted the necessary authority to consummate the sale. The consideration was \$200,000 and it is understood to cover all the assets of the company, outside of the cash in bank, including all patents, copyrights and the like, a forfeit of \$5,000 being deposited by the bidders, Herbert H. Rice and Wilbur C. Johnson.

Rambler Plant Growing.—Thomas B. Jeffery & Company is about to make the seventh annual addition to the Rambler factory at Kenosha, Wis. Ground has been broken for a concrete building, 257 by 150 feet, which will give an additional floor space of 38,500 square feet. The new building will be used by the final test department. Every year of the past seven has seen some large addition to what the Rambler people now claim is the largest automobile factory in the world. The latest photograph of the plant, below printed, shows its vast extent to a nicety.



The Big Factory at Kenosha, Wis., Where Ramblers Are Made.

A Winton Labor Day Tour.—A. S. Gilman, of Cleveland, drove his Winton Six from that city to Cambridge Springs, Pa., and back last Labor Day in ten hours' running time, without any attempt to make speed. The car carried ten passengers all the way. "I will certainly enter my car in the Winton prize contest this Fall," said Mr. Gilman. "I ought to have entered the first contest, and the car would have been a winner, too, for I have done 8,000 miles in it with practically no repair expense at all."

Hot Engine Club Toast.—From A. U. Jervis comes the following: "At a recent luncheon of the Hot Engine Club in New York the following toast was proposed: 'The good people of Savannah, Ga., and the good people of Lowell, Mass., let us drink to them and hope they will get all that is coming. Mr. Morrell has promised the good people of Savannah a race this year and he has promised the same race to the good people of Lowell for next year. God bless the good people; drink hearty.'"

New York's Newest Garage.—The Apthorp Garage, 214-216 West Eightieth street, at Broadway, was opened September 14 for the storage of private automobiles. The building is a modern structure, absolutely fireproof, six stories in height, and will be conducted on up-to-date principles and equipped with all the latest appliances for the comfort and convenience of automobile owners. The machine shop will be complete in every detail. Frederick Dickinson is in charge.

Walter Christie Automobile Company.

—The latest recruit to the ranks of automobile manufacturers in this country has come forth in New York City under the above title. This company has been formed with a capital of \$400,000, and it proposes to manufacture motors, automobiles, carriages and trucks. Incorporators: Van S. Howard, C. Colgate Moore, G. W. Moore, Morris Gest, Louis P. Strang, Samuel Bogart, all of New York City, and J. B. Lozier.

Mora Motor Car Company.—The sealed bonnet Mora car which this company drove almost 8,000 miles without the hood being lifted has been sold to H. I. Buttery of Waterloo, N. Y., who decided that in buying a machine he wanted to feel that he was getting a car that has already proven itself worthy. The power plant was placed in one of the light-powered touring cars, and the reports from the owner so far indicate that the car is doing excellent work.

Increases Its Capital.—The Auto Body Company, of Lansing, Mich., has increased its capital stock from \$25,000 to \$150,000, the increase all being subscribed for by the present holders. According to Secretary Bradner, the sole reason is the rapidly growing business of the company, which greatly added to its capacity during the past year by new buildings and equipment.

Stearns Changes.—The F. B. Stearns Company, of Cleveland, has made an announcement which will be a surprise to many. They propose that within sixty days they will be able to give purchasers of the Stearns cars the option of either the shaft drive or a chain drive. The company and sales manager, Charles B. Shanks, still prefer the chain drive, but they realize that all others do not, and to meet the demand have undertaken this policy.

Truffault-Hartfords at Lowell.—In speaking of the mechanical constitutions of the cars which participated in the 250-mile road race at Lowell, Mass., on Labor Day, mention was made of the fact that the Simplex, No. 1, was equipped with Truffault-Hartford shock absorbers, but the fact that the winning Isotta, driven by Strang, as well as the No. 2 Fiat, handled by George Robertson, were also similarly equipped was overlooked.

Another Sign of Prosperity.—The Speedwell Motor Car Company, of Dayton, O., has started work on the foundations of another new building 50 feet by 150 feet. This is the ninth building to be erected under the administration of General Sales Manager Loomis, who states that over half the product for 1909 has been contracted for. If this company keeps on, it bids fair to be one of Dayton's largest industries.

White Wins in South Carolina.—Columbia, S. C., had its first automobile race meet Labor Day on the mile track at the fair grounds, with over 2,000 people present. The principal event, the 25-mile free-for-all, for the Board of Trade cup, was won by a 30 horsepower White Steamer, driven by R. D. Lambert, his time being 30 minutes 30 seconds.

Avery Gas Company Moves.—The Avery Portable Lighting Company, maker of Avery gas tanks, has moved its general offices and sales department from 18-20 Martin street to 461 Broadway, Milwaukee, Wis. The factory will remain at the Martin street location until the new plant now under construction is completed.

De Palma Used Continentals.—When Ralph de Palma drove his Fiat to the new one-mile world's circular track record at Minneapolis, September 5, he used Continentals. His mark of 51 seconds is likely to stand for some time.

IN AND ABOUT THE AGENCIES.

Cadillac.—The Cadillac Motor Car Company, Detroit, Mich., has made preparations for the removal of its local branch in that city from 256 Jefferson avenue to 1403 Woodward avenue.

Schacht.—B. Applegate & Company, 326 Broad street, Philadelphia, have just been appointed agents for the Invincible Schacht high-wheel runabout in the Quaker City and adjacent territory.

Elmore.—The new Elmore agency garage, which is to be built at 742 South Olive street, Los Angeles, Cal., is now in course of construction. It will house a salesroom, garage, repair shop and office.

Gove Automobile Company.—Wisconsin State agents for the Regal, and which also has the agency for the Jackson and the Brush cars, has just moved into its new establishment at 52-56 Biddle street, Milwaukee.

Premier.—Webb Jay has just been appointed local agent in Chicago for the

Premier car, made by the Premier Motor Manufacturing Company, Indianapolis, Ind. Until recently the Walden W. Shaw Company was the exclusive agent for the Premier.

Oldsmobile.—The Oldsmobile Company, of New York, has leased the building at 251-253 West Fifty-eighth street, and will have it altered into a garage at a cost of \$30,000. Plans have already been drawn by Cowen & Company and work will be begun at once.

Stevens-Duryea.—The Tufts-Justin Company, which was recently appointed local agents for the Stevens-Duryea cars in Providence, R. I., to succeed the Snow Automobile Company, will remove into new quarters in the Dutée Wilcox Building at Aborn and Washington streets as soon as alterations are completed.

Monarch Motor Car Company.—Word comes from Chicago that the Monarch Company has just established three new agencies as follows: J. E. Garnett, Kan., with headquarters at Wichita; G. Lude-mann, Northeastern Iowa, headquarters at Parkersburg; H. M. Martinstein, Colorado, headquarters at Denver.

Chalmers-Detroit.—The Chalmers-Detroit car will be handled in Baltimore by the Zell Motor Car Company. This company, only recently organized, has E. Stanley Zell, former secretary of the Motor Car Company of this city, as president of the new firm. They have opened up temporary quarters at 1010 Morton street.

Stewart Speedometers.—Word comes from Chicago that the Stewart & Clark Mfg. Co., of that city, has established its New York office in the Motor Mart Building, 1878 Broadway. On the first floor a complete line of Stewart instruments will be on hand at all times, while basement facilities have been provided for making any adjustments or for installing instruments.

F. B. Stearns & Company.—Although the Stearns Company has been doing an increasing business for years, this does not seem to satisfy the new sales manager, Chas. B. Shanks. Heretofore almost the entire Stearns output has been disposed of in the East, but the few cars that this company has sold west of the Mississippi have been so well received that Mr. Shanks has started on a tour of the West to stir up all the Stearns agents to renewed activity. In anticipation of the growing demand for Stearns machines the company is making extensive additions to their Cleveland plant, both in floor space and machinery. The present plant has been working to its full capacity for two years with both a day and night shift, so means for increasing the force of men was the only means of enlarging their output.

PERSONAL TRADE MENTION.

Curtis W. Betts, formerly on the sales staff of the Mitchell Motor Car Company, of Racine, Wis., has joined the forces of the Peerless Motor Car Company, Cleveland, O.

W. W. Taxis, who has been with the New York office of the White Company, and well known to the automobile trade, has been appointed manager for the company in East Orange, N. J.

F. C. King, who was formerly connected with the F. B. Stearns Company, Cleveland, O., has been appointed manager of the repair department of the Metropolitan Motor Car Company of the same city.

Leon Rubay, well known to the automobile trade as an importer of foreign sundries, has taken charge of the wholesale department of Rothschild & Company, 530 West Twenty-seventh street, New York City, builders of auto bodies.

C. D. Snow, formerly head of the Snow Automobile Company, Providence, R. I., is now connected with the American Locomotive Automobile Company at its Providence selling branch. Mr. Snow had the Stevens-Duryea agency in Providence for six years.

B. F. Adams, who has been acting as manager for Carl H. Page & Company, agents for the Peerless, in Newark, N. J., has severed his connection with that concern to go with the Ellis Motor Car Company. Mr. Adams was with the White Company formerly.

R. M. Daniels, manager of the Studebaker branch in Boston, will in future also look after the interests of the new E-M-F car in that territory, under the terms of the recent agreement between the E-M-F and the Studebaker companies by which the latter is to market half the product.



The Men Who Sell Chalmers-Detroit in New York

President Carl Page (at wheel) and General Manager Percy Owen of Carl H. Page & Co.

George H. Strout, the sales manager of the Apperson Brothers Automobile Company, left Kokomo Sept. 11 on his annual trip to the Pacific Coast in the interests of the company. He will visit the principal cities in Colorado, Utah, California, Oregon, Washington, Montana, Minnesota and Wisconsin before returning to the factory.

C. B. Warren, for the past five years associated with the Haynes Automobile Company, Kokomo, Ind., latterly as sales manager, has resigned, effective October 1, and will take charge of the Pacific Coast business of the F. B. Stearns Company, of Cleveland. The Stearns Company will open a branch in San Francisco with Mr. Warren in charge to supply the trade on the coast, Salt Lake City being the eastern limit of Mr. Warren's jurisdiction.

Frank Staley, president of the Indianapolis Automobile Trade Association, has disposed of his business interests in Indianapolis and will take an extended trip through the West. Mr. Staley has been with the H. T. Hearsey Vehicle Company for the past fourteen years, and for the last decade has been its vice-president and general manager. For many years the company handled carriages and bicycles, and later automobiles were added, this branch of the business having been largely developed by Staley. His interests have been taken over by Fred I. Willis.

INFORMATION FOR AUTO USERS

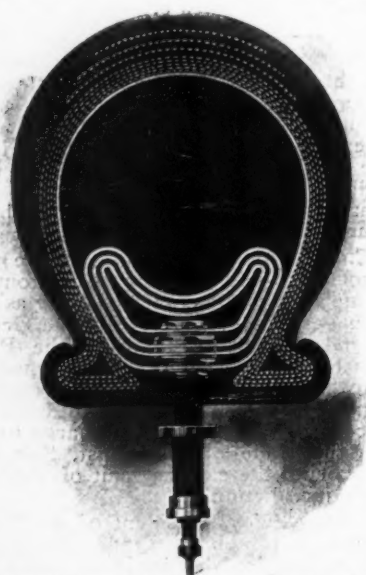
Indicator for Gas Tanks.—The Avery Portable Lighting Company, of Milwaukee, Wis., have recently put upon the market a little device for the users of gas tanks. It is a very simple arrangement which can be attached to all makes of tanks for regulating the amount of gas to turn on. As will be noticed in the



GRADUATED INDICATOR FOR VALVES.

accompanying illustration, there is a dial on which travels a pointer. This pointer is so made that it fits into any of the notches shown on the dial and gives a clicking sound when moved, so that at any time, day or night, the user may turn on the gas and know just how much he has opened the valve, two notches being plenty for two lights.

Guaranteed Faultless Inner Tube.—An ingenious solution of the tire problem appears in this product of the Guaranteed Faultless Auto Tube Company, 104 West Forty-second street, New York. The idea is that spare inner tubes should be carried inside the tire shoe, instead of outside,

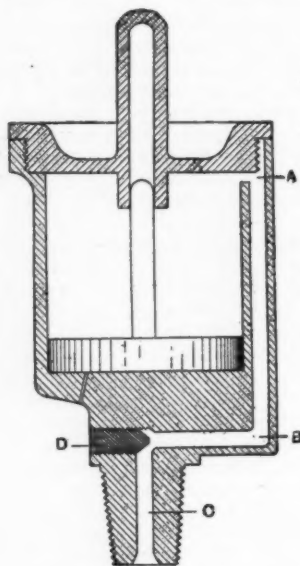


"FAULTLESS" TUBE, ONE INFLATED.

thus obviating the necessity of removing the shoe whenever it is necessary to replace a punctured tube. The "Guaranteed Faultless" tube therefore consists of four tubes, one inside of the other, arranged so that each can be inflated in turn by rotating the valve stem a notch. When a tire is punctured all that is necessary is to give the valve stem a twist,

connect the pump, and inflate the next tube. When all four tubes have been punctured—which should not happen for many thousand miles—the company will repair and vulcanize the tubes free of charge. The device promises to save much time and trouble in touring. The arrangement of the tubes and valves is clearly shown in the cut.

New Loose Pulley Oil Cup.—The accompanying cut shows a newly patented oil cup for use on loose pulleys. This device, made in two sizes, is manufactured by the Lawson Manufacturing Company, Buffalo, N. Y., and is claimed to solve the loose pulley problem, viz., keeping the loose pulley well oiled while in operation. It is the only cup of its kind on the market and should be a great saving, not only to the large number of manufacturing plants in the country, but to the increasing number of automobile



SECTION LAWSON OIL CUP.

owners who have had trouble keeping the clutch collar from heating.

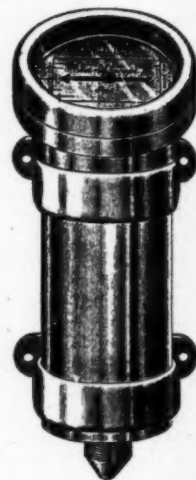
The cup consists of three distinct parts: A body, piston or plunger, and an oiltight cover. The cup is filled with ordinary lubricating oil by removing the cover, first making sure that the plunger is pushed clear down. The stem of the cup has standard pipe threads which screw into the hub of the pulley.

Its operation is very simple. The rapid revolving of the pulley causes the loose piston to be forced outward by centrifugal action, thus requiring the oil to flow through the bi-pass A-B-C (see sectional drawing) to the shaft. The flow of the oil is controlled by the screw D and must be regulated according to the speed of the pulley. When the pulley stops oiling ceases at once.

Graphlio.—This new lubricant is being marketed by the firm of Walter D. Carpenter Company, 39 Cortlandt street, New York. It has been known for years that flake graphite possessed lubricating qualities of great value, but there was always the difficulty of getting it in fine enough form and at the same time free from all impurities, as to enable it to be used in combination with a liquid substance and remain in suspension. In

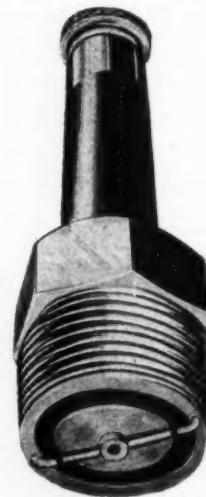
Graphlio this firm claim to have surmounted all these difficulties, and such being the case, it should be of inestimable value to the automobile trade through its better and more efficient lubrication. It is sold in 10-oz. cans, which is sufficient to graphitize 15 gallons of oil.

"Triumph" Gasoline Gages.—These gages, for use in portable and stationary tanks, automobiles and motor boats, are the product of the Boston Auto Gage Company, Boston, Mass. In all types the pointer is magnetic and is controlled by a magnet carried on the float inside of the tank. The float is mounted in such a way that it must revolve as it rises or falls with the level of the liquid, and the magnet causes the pointer to revolve to correspond. There is no communication between the inside of the tank and the head of the gage, and if the gage glass should accidentally be broken it would be impossible for gasoline or air pressure to escape. Another form of the gage is arranged so that the dial may be mounted on the dash; this is known as the "tankoscope." The dial is made to represent the shape of the tank, and is arranged so as to show just where the gasoline level is inside, instead of using figures. It is practically the same as having a glass front in the tank.



TRIUMPH "TANKOSCOPE."

New Pittsfield Jewel Magneto Plug.—The Pittsfield Spark Coil Company, of Dalton, Mass., have brought out a spark plug which they have constructed especially for use with magnetos. This plug, called the Pittsfield Jewel double-spark



JEWEL DOUBLE SPARK PLUG.

plug, has been made with two gaps, as shown in the accompanying cut. This gives a double volume of spark, making more certain the complete explosion of the charge, even should the mixture become poor. The insulation of this new plug is the same as that used on the Pittsfield plugs manufactured heretofore by this firm.